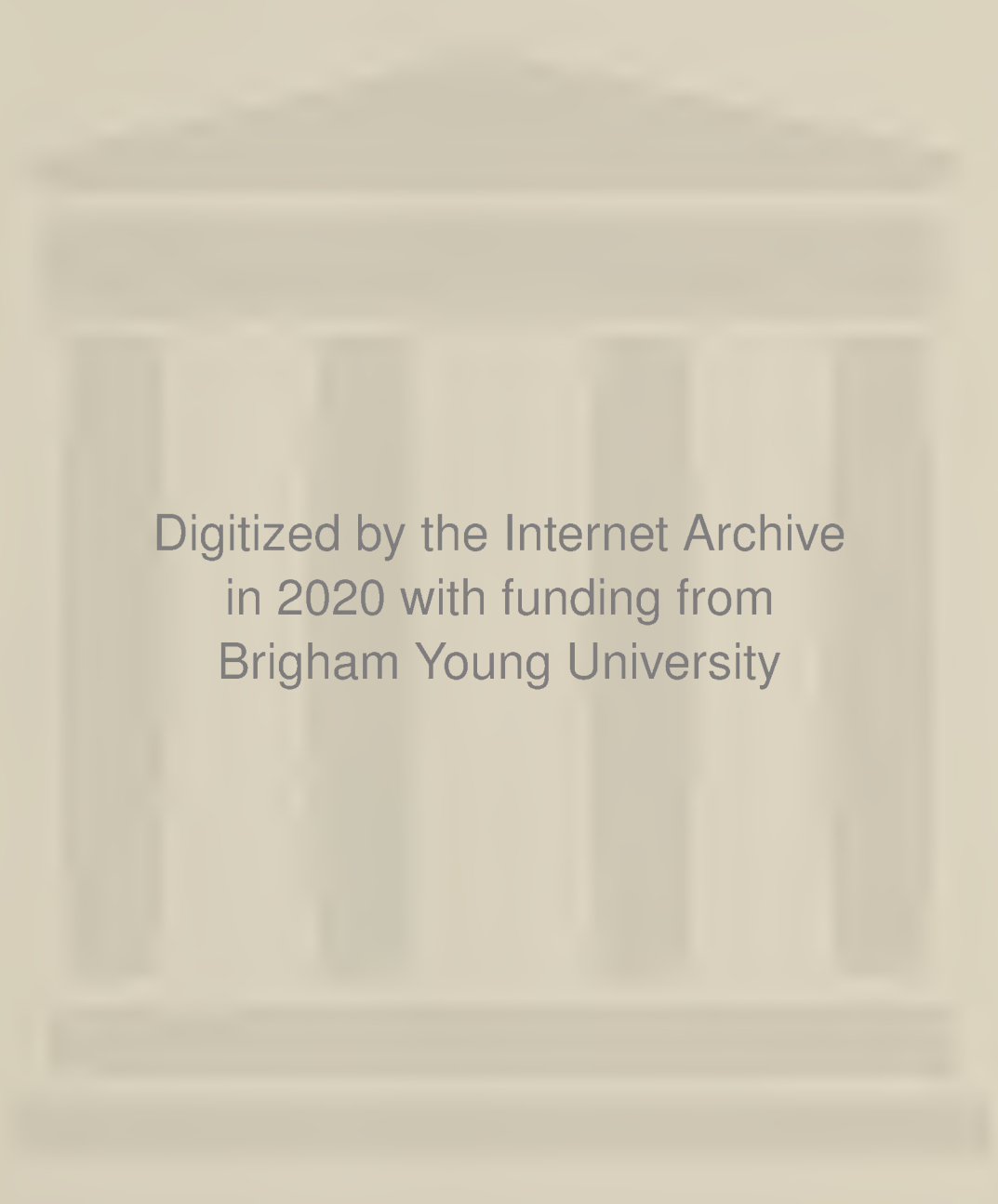


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PRINCIPLES OF SOCIOLOGY

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NEW YORK
HENRY HOLT AND COMPANY

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PREFACE

To take time and space to emphasize the importance of the science of sociology seems hardly necessary. Like all sciences this one has an ultimate utilitarian purpose, however much we may seem to be investigating truth merely for its own sake. The purpose of sociology is to aid in the perfection of social relations and to assist, so far as possible, our endeavors consciously to direct the course of evolution. No one believes that society is perfect. We are persistently — almost frantically — endeavoring to improve the social organization, but with only indifferent results. Much of our effort is misdirected and wasted. The reasons are that we work with too limited a range of vision, and we fail to understand fully the forces which we would direct. Narrowness and ignorance tend to counteract the effects of our enthusiasm and devotion. The scientific study of society should give us a clearer comprehension of human relationships and of the forces at work in the social process, and should enable us to direct our efforts much more effectively.

Sociology is still such a new science that no general agreement has been reached with regard to its subject matter. Its present awkwardness is due not so much to a lack of material as it is to the absence of organization in the material available. Sociology is therefore, in a position to be advanced both by the contribution of new material and also by a more systematic arrangement of the material already at hand.

If I have departed in the present volume from the usual treatment of the subject matter, it is to emphasize genetic factors in the social process; because I believe that the character and fertility of the population are of much more importance in the life development of social groups than would be indicated by the treatment of most writers. Throughout I have emphasized the physical and biological factors rather than the psychological. At the last I have given rather brief treatment, not because I

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January, 1924

PRINTED IN
UNITED STATES OF AMERICA

underestimate their importance but because I believe they may best be developed as a separate branch of the science.

This volume is written primarily for the use of college students; but it is hoped that it will be serviceable also to those general readers who wish to gain a clearer understanding of the important subject of human relations.

The references at the ends of the chapters should not be considered as in any sense a bibliography. They are merely a few of the many possible selections which seemed to me suitable for more extended reading. They are designed primarily for the needs of undergraduate students; but occasionally more advanced readings have been included when these have seemed to be particularly pertinent to the subject discussed.

Chaper XXX, on Science, has already appeared in substantially the present form in the *Popular Science Monthly* for September, 1911, and is reprinted here with the consent of the editor.

I wish to acknowledge my indebtedness to Professor S. J. Holmes, of the University of California, who kindly read the chapters on heredity and made a number of valuable suggestions. In justice to Professor Holmes it should be said, however, that he is in no way responsible either for the method of treatment or for the statements made in those chapters. Professor T. D. A. Cockerell, of the University of Colorado, has also kindly assisted in arranging the diagram illustrating the order of evolution, — a diagram which was compiled from a number of sources. And finally I wish to acknowledge my heavy indebtedness to my wife, who has been of invaluable assistance to me in preparing the manuscript for the press.

FREDERICK A. BUSHEE.

BOULDER, COLORADO

April, 1923

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PART I

**THE GENERAL PRINCIPLES OF SOCIAL
PROGRESS**

CHAPTER I

THE SCOPE AND METHOD OF SOCIOLOGY

Society and Social Groups. Sociology is one of several sciences dealing with human society. Man is the subject matter of the science; but sociology does not study man as a physical organism, nor does it study his isolated activities. It investigates rather the phenomena which arise out of the association of men with one another in society.

The word society is employed in two senses. Many sociologists use it to designate any association of individuals organized for a given end. Such an association may be large or small, permanent or temporary, and organized for one or more purposes. Trade unions, scientific or religious organizations, and social clubs are all societies in the sense that they involve the necessary fundamental element of association. Professor Ellwood, approaching the problem from the psychological point of view, defines society as¹ "any group of individuals living more or less conscious reciprocal relations with each other." This definition is very inclusive, throwing emphasis on the phenomenon of association as the determining factor in society.

In contrast to this idea which includes all kinds of partial organizations is the conception of a society as an organization complete in itself, all forms of social life being contained within boundaries. The first use of the term is the broader one, because it would include the large self-sufficing organization mentioned in the second definition as well as the many smaller organizations organized for particular purposes. The idea of the self-sufficing society is not a difficult nor an unnatural one; but indefinite, because in the case of advanced peoples no such organization exists as a single unit within definite boundaries.

¹ Sociology in its Psychological Aspects, p. 13.

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In modern times such a society would comprise most of the civilized world, because it would include trade relations and intellectual influences not confined to a city, or even to a nation. The outstanding fact of modern social life is that peoples, formerly widely separated, are now influencing one another more and more; and societies, which were formerly complete in themselves, are being merged into one great society.

A society in this latter sense is often confused with the state, but it is evident that the two are not identical. A state is an organization for one particular purpose, while a complete society includes associations for all purposes. But even when a society is not identified with a state in the sense of a political organization, it is sometimes understood to be co-extensive with political boundaries; that is, each state is supposed to be a complete society, and we conceive of the French nation, for example, as one society, and the people within the boundaries of the United States as another society. This conception is evidently inaccurate for no peoples, excepting isolated primitive groups, are entirely self-sufficing. All have relations, such as trade, or intellectual interests, or even social intimacies, which extend outside the state boundaries. However it is often convenient to represent a particular state as a society, because it has definite boundaries and is a physical unit; and, if the exact difference between the two organizations is understood, such a representation will not lead to serious error, because a state does include the chief social interests of a vast majority of the people.

It will be convenient to distinguish this conception of the large complete social organization from the smaller partial ones by confining the term society to the former and calling the latter social groups or associations. A society then is composed of individuals; and these individuals are grouped into a large number of social circles for a variety of purposes, such as family, religious, social or friendship groups, business and professional organizations, philanthropic or cultural associations, and the like. These social circles overlap, each individual belonging to many groups and associating with different individuals for different purposes. And finally these social groups are

for the most part, though not entirely, included in the large association for political purposes called a state. But in modern times state boundaries do not set limits to all forms of association; and therefore a still larger informal organization must be conceived of as a complete society.

Sociology Distinguished from the Special Social Sciences. Sociology as a general science deals with all forms of social relationships; and therefore its subject matter can be nothing less than a complete society. As a matter of fact, it obtains its material from all kinds of social groups whether partial or complete.

Associations of individuals for specific purposes, like business, government, or religious organizations, may each be made a subject of study; and such studies give rise to the special social sciences, such as economics, politics, comparative religions, etc. But however numerous and complete the special social sciences may be, any piecemeal study of society necessarily misses certain fundamental and significant social facts. The life of man is not comprised in any single activity, and associations of men for different purposes all react upon one another. Therefore, to understand fully the nature of man and his social relations, society must be studied in its entirety as well as in its parts.

As compared with the individual social sciences, sociology is a more general and also a more complicated science. It deals with the fundamental principles which enter into the various social sciences, just as biology deals with the fundamental facts of life and the sub-sciences of botany and zoology deal with specific manifestations of life. It is natural that the social sciences should develop first, because knowledge normally begins with the particular and passes to the more general; but, as our knowledge of the great fundamental social processes increases, the new material and the new point of approach should throw light on all the special social sciences and complete them.

The Relation of Sociology to the Other Primary Sciences. A clear comprehension of the province of sociology requires an analysis of its position among the other fundamental sciences,

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as well as a distinction between it and the special social sciences. Auguste Comte, the first modern writer on sociology, in his *Positive Philosophy*, classified the sciences as follows: — Astronomy, Physics, Chemistry, Biology, (Psychology), and Sociology. Comte himself made psychology a sub-division of biology, but later writers have given it a place among the primary sciences. Spencer objected strongly to this classification and substituted another for it; and it is true that for some purposes Comte's hierarchy is a poor one. But sciences may be arranged in different ways for different purposes, and Comte's classification emphasizes certain points which are well worth noting.

Comte classified the sciences in their serial order for four reasons. He maintained that it ranked them in the order of their historical development, and of their dependence, and indicated their relative degrees of complexity, and of precision. Although his classification does show in a rough way the historical development of the sciences, that development has not actually been so lineal as this arrangement would imply. It is not far from the truth to say that, in the matter of dependence, the development of some of the later sciences has reacted upon the earlier as markedly as the development of the earlier has stimulated the later. From the point of view of development then sciences are interdependent rather than lineally dependent. It is true, however, that any one of these sciences is likely to make use of many of the principles derived from the sciences which immediately precede in Comte's arrangement. For example, many of the principles both of biology and of psychology must be understood before the laws of sociology can be fully mastered.

Of more interest are the last two characteristics of the sciences discussed, — their complexity and precision. By complexity Comte meant the relative number of forces or factors involved at a given time. From this point of view it is probably true that astronomy is the simplest of all the sciences; and the series shows increasing complexity up to sociology, which has to take account of the largest number of forces acting at once. The precision of a science refers to the character of its conclusions

and its power of accurate prediction. The precision of scientific conclusions usually varies inversely with the complexity of the factors involved, that is, a complex science can state laws only hypothetically and can predict future events only with reservations. It is sometimes argued that a body of knowledge deserves to be called a science only in proportion to its ability to predict with accuracy; but such limits would be too narrow. A body of knowledge should be called a science if the material can be classified and cause and effect be demonstrated. After that stage is reached accuracy in prediction in the various sciences is merely a difference of degree and not of kind. The astronomer can work out the orbit of a comet and predict with great precision the return of that comet. But he does so with the assumed qualifications that no force intervenes in the meantime to change its orbit. In the same way the social scientist may work out the nature of a particular force, or even a combination of forces, and predict the results provided no new influence intervenes. But the difference in the nature of the two predictions is that, while the astronomer is reasonably certain that no new influence will appear to disturb his calculations, the sociologist knows well that before long some disturbing factor, such as a legislature, or a new invention, will intervene to alter the original conditions. Because of this complexity of factors the social sciences are sometimes called hypothetical; and prediction with them simply means an indication of the effects of the action of given forces. It does not imply that conditions may not change and that hence these effects may not be altered in the course of time. To conclude however that a hypothetical science is of no practical value would be far from the truth. The function of the social sciences consists in ascertaining the nature of particular forces and, so far as possible, the results of several forces working together. It is impossible to direct social evolution intelligently or employ social forces to advantage, unless they are first understood.

Sociology Deals with Uniformities. Certain critics profess an inability to believe in the possibility of a science of society simply because the subject matter deals with human beings

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who are free agents, whose actions therefore, they maintain, can neither be predicted nor be reduced to laws. Fortunately for the sociologist the question of free will and determinism does not have to be settled, before social phenomena are studied, for these terms merely indicate methods of explaining human conduct which may be left to philosophers to decide. The sociologist simply accepts the evident fact of uniformities in human actions without explaining the psychological causes of those uniformities. The fact that men act similarly under like conditions is demonstrated over and over again by statistics. The most obvious are those of the birth and death rates which are comparatively unvarying unless some new factor enters. But, if statistics of this kind are objected to as proof of uniformity in human action on the ground that such phenomena are not always subject to human volition, it may be pointed out that the marriage rate is more uniform than the birth rate and the suicide rate in a given district is as invariable as the total death rate. If then human actions can be reduced to uniformities, they are a possible subject matter for a science, whatever the explanation may be of the psychological causes of those actions.

Subdivisions of Sociology. Sociology as a science is so broad, and the subject matter so complicated, that it may easily be divided into parts, and it may be presented from different angles. The psychological side of human relations may be specially emphasized; or the material side, that is the physical and biological aspects of social phenomena, may be made the point of approach. At the present time the psychological aspect of society is given prominence by several writers; and this phase is undoubtedly important, especially in this early period of the development of the science. Social psychology may however properly be separated from sociology as a subject in itself, standing intermediate between psychology and sociology proper, and forming an indispensable connecting link.

Comte, and a few later writers also, have divided the subject into static and dynamic sociology; and such a distinction is a possible one. According to this division dynamic sociology would deal with social progress. Its point of view would be the long range one; and it would analyze those factors and

forces that cause changes in social conditions and improvements in social life. Static sociology, on the other hand, would study a cross section of society at any given time, but presumably the present period. It would investigate the social institutions existing, their proper functions, and their relations to other institutions and to social life in general. For example, a study of the church as a social organization and of its proper function among other organizations would belong to static sociology. On the other hand a study of the development of an institution, like the family, and the causes of that development would be a problem of dynamic sociology. It must be admitted that these two points of view are not wholly distinct. Problems in one division naturally lead to problems in the other. A study of the proper function of any social organization naturally leads to problems of the perfecting of that organization, that is to the problem of its development. However, although a complete knowledge of society would involve an understanding of both the static and dynamic aspects of the subject, it is quite possible, perhaps even necessary, to present these divisions separately; and this book will deal primarily with the laws of progress rather than with the problems of present day institutions.

Sociology may now be defined as the science which treats of the organization and development of human societies. Dynamic sociology treats of the laws of social development; and static sociology deals with the structure of society and with the nature and proper functions of its institutions.

Progress Distinguished from Other Forms of Social Change. Before entering upon the discussion of the principles of social progress, it will be advisable to define the meaning of the term progress and also to consider some of the misconceptions which may arise from its use. Progress is commonly understood to mean an approach towards the ideal. It implies an ultimate, if not a continuous, increase in well-being. But not all change is progress. Some changes are the opposite of progress and mean retrogression or dissolution. Progress itself includes two forms of improvement, which may be distinguished by the same terms used to describe similar processes in lower

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organic life, evolution and growth. Evolution refers to the development of higher types out of lower, while growth describes the developmental changes which the individual undergoes in his life process. Occasionally among vegetable or animal forms of life a new species appears and persists. Such a variant may be superior to pre-existing forms and contribute to true progress; but not always. New species have not arisen out of the old in uninterrupted progression. Sometimes new forms are inferior in organization, or they may even be parasitic; and in such cases no gain is discernible. Growth is clearly a different process. A seed germinates and develops into a mature plant, deteriorates and dies. And a host of similar plants follow the same course without producing superior forms. Growth is of course essential and desirable, but it is quite distinct from the process of evolution, though it may perhaps merely represent a shorter rhythm or pulsation of life forces.

In the sphere of social life similar distinctions can be made. New and superior types of organization occasionally appear, as for example, the monogamic form of the family, or a democratic form of government springing from an autocratic form. But in contrast to the emergence of a new type, a particular organization goes through a process of growth from a small beginning without change in its fundamental characters. For example, a municipality begins with a small population and a simple organization; and, as population increases, buildings multiply and become more varied, streets are improved, and transportation and lighting systems are perfected. But all these improvements indicate mere growth, like that of youth to manhood, rather than the evolution of a new type. The city resembles scores of other cities all of which have passed through similar transformations. Such changes in social organizations must be classed as phases of progress but not of evolution.

Another phenomenon, quite common in human societies, is the diverse developments which the same institution may undergo in different societies or environments. Just as a plant may alter its appearance because of modifications in soil or climate, so a social institution may be altered when borrowed by an alien people. The parliamentary form of government is quite

a different institution in continental countries from what it is in England, the country of its origin. Religions almost always undergo marked changes both in form and in content as they are adopted by peoples in different stages of culture. Such modifications are not in themselves either marks of progress or of retrogression. They may, however, be the beginnings of variations leading to improvements or even to the evolution of new types.

Next, all forms of change indicating degeneration must be distinguished from constructive changes making for progress. In the social sense disease may be defined as a condition which impedes normal growth, or keeps the social organs from performing their proper functions. This phase of social life has not yet been sufficiently studied to be fully recognizable. We are likely to look upon everything which is undesirable as social disease; but we should remember that mere growth and progress as such necessarily involve waste and elimination; and, disagreeable as this side of social life may be, it is not abnormal and cannot be remedied. A certain amount of poverty, crime, and degeneracy is doubtless the normal by-product of progress. Disease should be cured, and if possible eradicated; but time and energy should not be wasted in attacking without discrimination everything which appears unworthy and unpleasant.

Finally, there is a possibility that a further difficult distinction between the normal and the abnormal may have to be made. In case of individual organisms dissolution and death are inevitable after the cycle of life is completed. In the individual therefore old age itself with its various weaknesses is not abnormal. Is a similar stage of senescence and decrepitude normal with human societies? If so, then the weaknesses and disabilities of this stage must again be distinguished from disease which is curable. However, opinions differ greatly on this point. It is not at all certain that death is a natural phenomenon in the case of societies. Institutions certainly decline, and societies disappear; but it is possible that such phenomena are always due to abnormal conditions, and no distinction along this line will be found necessary.

The distinctions made here between evolution, growth, and

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disease or degeneracy are important in connection with certain problems, such as those relating to social pathology; but the phenomena themselves are not yet thoroughly understood, and they are presented as subjects requiring further consideration and investigation. The distinction between evolution and growth, though a real one, is not always necessary, for in social fields the two processes seem often to represent differences of degree rather than of kind. And in any case the processes of evolution and of growth seem to be achieved in much the same manner. The term progress will continue to be used to include both processes.

Methods of Reasoning. *Deduction and induction.* Finally we may consider briefly some of the most profitable methods of procedure in the study of social phenomena. Scientific methods are usually classified as deductive or inductive. Deduction formulates particular laws from a general hypothesis by abstract reasoning, while induction uses concrete facts as a basis and makes its generalizations from them. Inasmuch as the deductive method has led scientists astray into the formulation of laws far removed from the actualities of life, it is at present in disrepute; and induction is supposed to be the only dependable scientific method. While this conclusion may be sound as a general proposition, the idea at present tends to be carried to an extreme; and hence the warning may be pertinent that deductive reasoning is not necessarily a useless scientific instrument. Pure induction itself may have its own dangers and defects, for it sometimes causes scientists to be content with the mere accumulation of masses of facts with little attempt at or success in their coördination or in the formulation of principles. In short both methods are capable of abuse. The danger of deduction would be its liability of producing a mass of nebulous theory suspended above the earth of facts; while the danger of induction would be its liability to accumulate a wilderness of facts leading to a desert of truths. The safest and at the same time the most fruitful method in science consists of a combination of induction and deduction, comprising three distinct parts. First, a theoretical but tentative hypothesis should lead next to an examination of the facts pertinent

to the hypothesis, and lastly a permanent conclusion should be deduced from the facts. In many problems of the natural sciences the study of the facts is of overwhelming importance and the first and third parts of the process come to be almost negligible, so that the method may be said to be purely inductive. In the social sciences, however, where the forces are many and interrelated, the conclusions to be drawn from the facts are not so evident; and the selection and interpretation of the facts themselves is such an important part of the process that the method is manifestly deductive to an important degree. The truth is that, as the data of the sciences become more complicated, the theoretical side of the investigation has to be resorted to more and more. It is also true that a new science requires the deductive method more than an advanced one, for a new science is in the process of determining its boundaries and preparing its ground. Until tentative theories have been formulated the mere collection of facts is likely to be without system and without positive results. However, while all the social sciences will continue to use deduction to a greater extent than will the natural sciences, sociology is one of the concrete sciences; and, as it matures, it will necessarily place its chief reliance upon induction.

The method of difference. Induction as a system of procedure requires further explanation, because it is a name for a general process and includes a number of specific methods. The two which are of greatest interest to the social scientist are the method of difference, and the method of agreement, the most common form of which is that of concomitant variation.

One use of the method of difference consists in the study and comparison of two periods, one of which includes and one of which does not include a given factor. An example of this method may be found in the study of a society before and after a specific law has been put into operation. It is taken for granted that no other causal factor has been at work, and that therefore the changes which occur are the result of this one factor. In such a supposition lies the weakness of this method, because time is needed for the working out of any new force and time almost certainly brings other new factors into the situation.

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Another application of the method of difference consists in comparing two similar societies or groups, one of which has a given factor at work while the other has not. This method requires the exercise of the greatest care in comparison, for no two societies are so alike as to vary in only one respect. In both cases deductive reasoning must be employed continually to show the probable relationship of causes and effects.

Sometimes both kinds of comparisons may be used to advantage on the same problem, the former furnishing positive and the latter negative testimony to the demonstration. In fact to be convincing the method of difference frequently requires a checking up by negative results taken from the study of a society where the particular factor in question is absent. If in this case the original results do not appear, then the probability that cause and effect have been found in the first case is very much strengthened. An example will make clear the complete process of induction by the method of difference. General observation leads to the supposition that drunkenness is an important cause of crime and therefore it is anticipated that a prohibition law will greatly reduce the amount of serious crime in a community. This supposition represents the tentative hypothesis which requires verification from a study of the facts. Turning next to the facts we may study the conditions existing within a state before and after the passage of a prohibition law. For example, in Colorado within two years after the state prohibition law went into effect the number of prisoners in the penitentiary was reduced by about one-third. Thus far the original hypothesis is supported by the facts. Careless investigators are usually satisfied to stop at this point with a single case of confirmatory evidence. To complete the demonstration however the negative test should be used by studying the situation in states having no prohibition law. The situation in California, which was then under the license system, failed to verify the preliminary conclusion, for during the same period the number of prisoners there decreased to almost as great an extent as was the case in Colorado. Thus doubt was thrown on the original supposition with regard to cause and effect, making necessary the testing of new hypotheses concerning the

primary cause of serious crime. Such an instance makes evident the desirability of negative as well as positive tests of the facts when inductive reasoning is employed.

The method of concomitant variations. The method of concomitant variations consists in comparing two variable social factors or conditions over a period of time. If the two factors rise and fall, or appear and disappear, together, the assumption is that they are in some way related. Either they are cause and effect, or both are the results of some common causal influence. This method is ordinarily used when large numbers of instances, as represented by statistical averages, are available; but the method may also be used with a few cases requiring no statistics.

The weakness of this system lies in the tendency in its use to assume a causal relation between the variants when no such relation actually exists. Sometimes also, even when cause and effect are evident, it is not clear which factor is cause and which is effect. While the method of concomitant variations often gives surprising and incontrovertible results, to be safely used it must be accompanied throughout by deductive reasoning reenforced by a broad knowledge of social forces.¹

An illustration of this method may be taken from the one given above with regard to the causes of crime. Another preliminary hypothesis could be made,—namely, that serious crime was the result of economic conditions as shown by the extent of unemployment. To test this possibility the investigator would naturally shift his method from that of difference to that of agreement. If the statistics of unemployment varied constantly with the amount of crime in a variety of places, and at different times, the evidence would be very strong of a causal relation, because it would not be difficult to show reasons why unemployment might lead to crime.

Sources of Material. To be distinguished from methods of proof are two important methods of collecting and presenting material: the statistical and the historical.

¹ See Durkheim's "Le Suicide" as a model example of the use of different kinds of concomitant variations. It furnishes also an example of the way in which the conclusions from this method of induction may be vitiated by an inadequate use of deductive reasoning.

Statistics. If the phenomenon to be studied is one which is continually recurrent in present day society the data may often be obtained in the form of statistics; and, if these are reliable and properly interpreted, they form an excellent basis for proof because they are so inclusive. The figures alone however may be very misleading, because they sometimes combine things dissimilar in nature; hence the more statistics are illumined by a wide personal knowledge of conditions the better.

History. If the phenomenon to be studied is one in which changes occur slowly, as in an institution, or one in which complete development occurs only occasionally, historical data are usually the only kind available. The historical method includes not merely the comparison of conditions in different historical periods in a given society, but also the comparison of conditions in societies far removed from one another, and often of those in different stages of development. Sometimes a phenomenon occurs so rarely that if all known cases are collected hardly enough evidence is found to afford proof of any theory; and such material is then presented merely as evidence of what has happened under the conditions given, rather than as a demonstration of what will inevitably take place under similar circumstances.

Either statistical or historical material may be used in the method of proof by means of concomitant variations, and occasionally they may be combined. For example, the marriage rate may be found to vary with prices; in which case we have concomitant variations of two sets of statistics. Or again, it may be found that the suicide rate varies with periods of war and peace; in which case we find sets of statistics varying with historical periods.

Observation. In addition to these formal sources of material, studies of social life, provided they are the results of trained observation, are of sufficient importance to deserve special mention. The value of individual observation will naturally vary with the nature of the problem studied. Its chief danger is that conclusions may be hastily made from cases too limited in number. This error is so common that in social phenomena covering large areas, or including large numbers, the method

of personal observation comes to be a danger rather than a source of illumination.

But, further danger arises out of the fact that observation is often not merely a matter of description but involves rather the interpretation of acts. Therefore the impressions gained may differ according to the point of view of the observer. This has frequently happened when untrained observers have reported on customs and ceremonies of primitive peoples. Without comprehension of the real meaning underlying them, their interpretation has been the basis for misleading reports.

Introspection. Another method sometimes employed by the social scientist, to be classed as a subdivision of observation, is introspection or observation of oneself. Sometimes we can clarify our understanding of motives, and thereby reason more accurately concerning cause and effect, if we analyse our own feelings and reactions under similar conditions. As an aid to analysis this procedure may be justifiable, but it does involve the danger of confusing real cause and effect. In concentrating upon mental processes we are likely to place the causes of social phenomena in the mind itself, whereas the mental process is merely a link in the chain, the real cause lying in external conditions. The mental process may be the factor of interest to the psychologist, but the conditions giving rise to the process are of chief concern to the sociologist. Of course causes in social life work out their effects only as they act through the minds of men, and it is for this reason that psychology and social psychology are regarded as necessary preliminaries to the study of social science.

The conclusion with regard to observation of any kind as a source of material is that it is not sufficiently comprehensive and reliable to be used as a basis for primary or fundamental conclusions, and that it should be used rather as a supplemental aid in estimating conditions and in perfecting results.

This brief review of the methods of the social sciences is given not so much to direct the investigator in his work as to enable the reader to evaluate the conclusions of social studies through a comprehension of the methods employed and a recognition of their several defects.

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CHAPTER II

THE INDIVIDUAL IDEAL

The Individual and the Social Ideals. In presenting the subject of social progress with which this volume deals, an outline of the general principles of progress will be given first, as the subject matter of Part I., and the remainder of the book will deal with the more specific and detailed factors and influences.

The subject of the general principles of progress may best be approached by taking a comprehensive outlook over the general course of evolution in order to ascertain its goal. Has the nature of evolutionary change been sufficiently evident to indicate its general trend? And can we foresee to any extent its future course? The discussion of these problems properly belongs to the province of social philosophy; but a general perception of the ultimate end of social progress furnishes the student a valuable point of approach to the scientific investigation of social phenomena.

The chief advantage of determining at the start the ideal of social development is that a perspective of social evolution is gained, and just in so far as we are able to apprehend social evolution in its entirety can we adequately judge the place and importance of specific phases of evolution. A comprehension of the broad aspects of social progress tends to enlarge the vision and to provide a rational view point. The social scientist finds himself in the peculiar position of being a part of the phenomena which he studies. And for this reason he of all scientists is most likely to find his judgment warped. If he can isolate himself mentally from the immediate confusions of the social process and contemplate the broader forces at work and the ultimate goal of endeavor, his judgments will be the saner. We are all so likely to over-estimate the importance of immediate interests, or to mistake personal ambitions for

important social needs, that a broad vision is indispensable for unprejudiced observations and conclusions. And in the second place, the formulation of an ideal is of advantage in that it provides a general, though not a very exact, standard of judgment for social movements and reforms. Thus if a specific social movement accords with the ideal, it is desirable; if it does not, it is undesirable. The defect of an ideal as a practical standard is that any ideal has to be expressed in such general terms that it does not furnish an absolute criterion for the evaluation of all social movements. Nevertheless the acceptance of one ideal or another may make considerable difference in our attitude towards particular reforms.

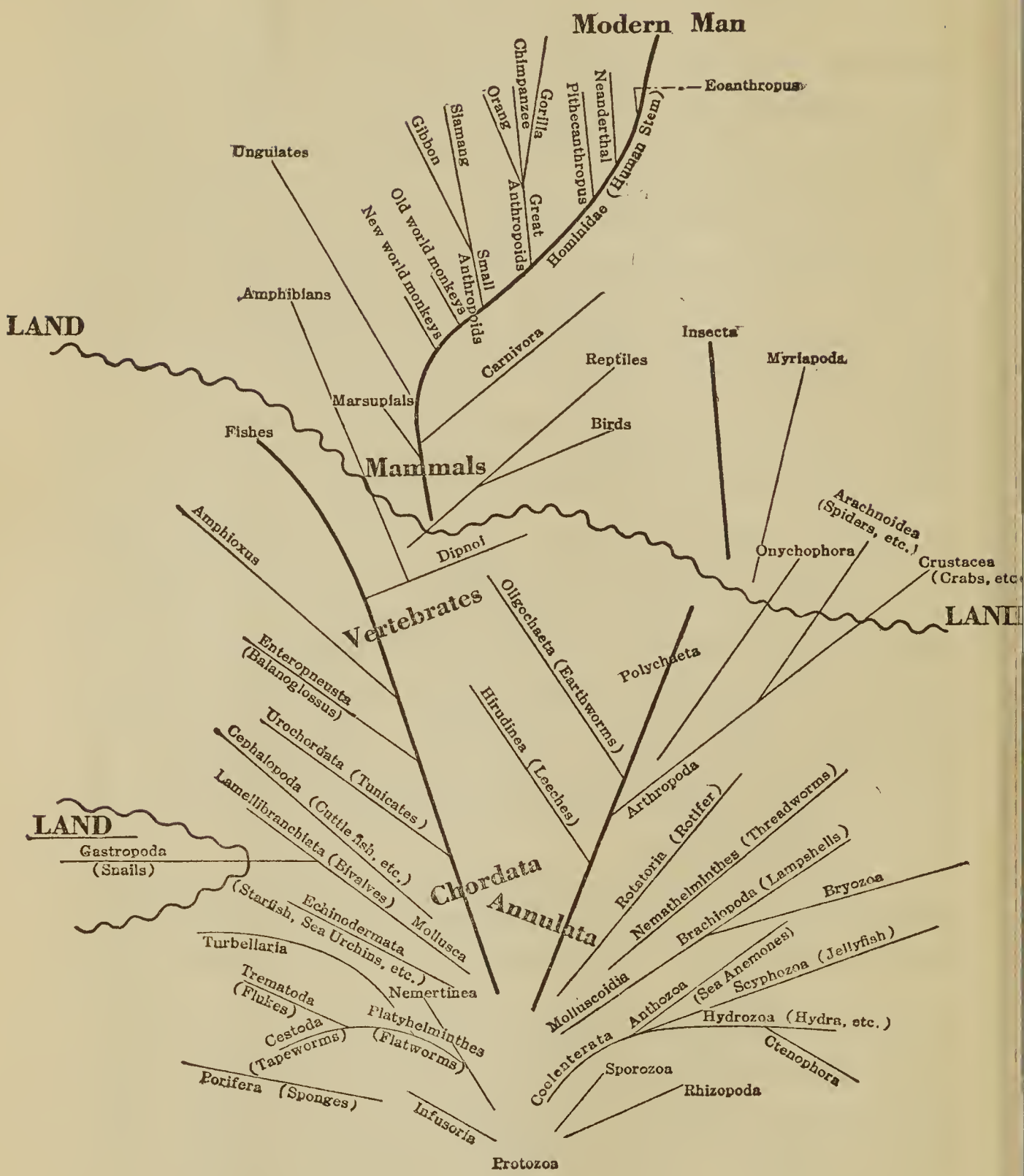
The discussion of the ideal in social philosophy has two aspects; the first is concerned with the goal of development for the individual, and the second with that for society. The latter, in other words, discusses the ideal or perfect form of social organization.

Significant Facts of Organic Evolution. The problem of the individual ideal is ordinarily approached from the point of view of the philosopher, who beginning with the nature of man reaches his conclusion by deductive reasoning concerning the ultimate good. Such a discussion however would be beyond the scope of this book. A practical approach to the determination of the ideal may be found in the method of the scientist; that is in analyzing the course of development in the past and from this drawing a conclusion concerning the probable trend of future development. Following this system I shall review briefly some of the most significant features in the evolution of life.

In the course of organic evolution vegetable life appeared first and produced countless varieties both on land and in the water. Leaving out of consideration the relative advancement of the different varieties of vegetable life, it should be noted that every vegetable form has the disadvantage of being rooted to a particular spot. With the appearance of the protozoa, which had freedom of movement, the possibilities of development greatly increased, because animals had the advantages of being able to seek their food and to change their environ-

ments. From the simple forms of the protozoa, animal life developed in numerous directions like the branches of a tree. The most important lines are shown on the chart. Omitting the minor branches from which water animals alone arose, there remain the two great lines of annulata and chordata, both of which produced land animals, and both of which developed high forms of individual and social organization. The annulata, represented by bees, wasps, and ants, have developed the most perfect forms of instinctive action; but, with the perfection of social life based on instinct, development seems to have reached its limit. The line of chordata, on the other hand, contains infinite possibilities of development for its highest life is based upon intelligence and reason. In its evolution the point of prime importance was the appearance of the vertebrates, a form of life which provided a bony structure to protect the nerve cords and at the same time permitted ample freedom of movement. Another important step in advance was made when the vertebrates became land animals, for the land offers a more varied environment than the water; and, while it is a more difficult environment, it is also a more stimulating one. Of the land vertebrates, the mammals became the most important, because the relationship between parent and offspring ensured parental care and affection during the prolonged period of infancy and also presented conditions favorable for the development of gregariousness.

Among the mammals a comparatively short line of anthropoid apes outstripped all the others, because of their more delicate physical organization. This physical organization reacted upon the nervous system to develop the brain; and then in turn it served as a delicate instrument to be directed by the brain. The physical structure of the line of apes culminating in man showed several important advantages. The erect posture permitted the hand to become differentiated from the foot and to be specialized as a prehensile organ. The hand is by far the most perfect organ of its kind in the animal kingdom, the nearest rival being the trunk of the elephant. The possession of the hand enables man to perform many acts which no other animal is able to perform; and the use of the hand has been



an important factor in developing man's thinking powers. Another superior character perfected in the human species is the larynx, which enables individuals to communicate accurately their ideas, so that the thoughts and experiences of one may be made the common property of all. And the transference and use of ideas tend to stimulate new ideas. By these and other means the brain has developed until mental powers rather than physical features have become the distinguishing characteristic of the human species. It is difficult to state the exact difference between man and other animals; but it is certain that man has a greater degree of self-consciousness and an increased ability of self-direction through reason.

With the attainment of an adequate physical organization, then, further advantage lay in the direction of increasing intelligence, and ever since the appearance of the primates evolution has been chiefly a matter of brain development. With the advent of man evolution changed from a physical to a social phenomenon and progress has consisted in the accumulation of mental products. Possibilities of progress along social lines seem to be without limit. The increase in desires and in the complications of intense social life stimulate new brain coördinations, until civilized man is already much farther removed from primitive man in point of mental achievement than is primitive man from the anthropoids.

The Goal of Development. If the significance of the course of evolution be now considered, it will be evident that nature produced a complicated and efficient physical organization and along with it developed a marvellously effective nervous system. This perfected physical organization made possible the development of the intellectual powers. These two qualities, physical and mental, are usually regarded as different forms of life; and we may therefore conclude that nature's work in the past has resulted in the production of higher and higher forms of life; and that the future goal of nature, — and therefore the ideal for the individual, — will be the achievement of the maximum of life. This goal implies then, not merely the highest possible development of each individual, but the production of the highest type of individual, even though this type may be achieved only through the sacrifice of particular individuals.

The term life used in connection with the ideal has the advantage of being easy to comprehend, but it has the disadvantage of being difficult to define. Everyone recognizes the difference between the animate and the inanimate and distinguishes broadly higher from lower forms of life. Still, that force which gives an organism its internal power of growth and renewal escapes our powers of comprehension even as it does our powers of description. Spencer's definition that 'life is a continuous adjustment of internal relations to external relations'; and Brooks's definition that life is 'response to the order of nature', may be true; but they hardly give us a clearer comprehension of the thing itself. If the word life is used then, it will have to be as a generally accepted popular term rather than a scientific term capable of exact definition. Inability to define a term is not always, however, an objection to its use.

Other Statements of the Ideal. The conclusions of other writers who approach the problem from different points of view may profitably be compared. Spencer bases progress on a tendency towards individuation. In the animate world, he says, we find higher and higher forms of organization and structure. Lester F. Ward¹ finds the object of nature to be the transference of the maximum amount of inorganic matter to the organized state. Or, again, he says that evolution is essentially a process of storing cosmic energy. And he cites Asa Gray as arriving at a similar conclusion when he says that the object of nature is to accumulate the greatest amount of "being" upon a given space. These statements are all true and suggestive. They help to elucidate the course of development, yet they do not explain it fully. The use of the term "being" is similar to the use of "life." It involves the same difficulty of definition and is probably even less easily understood. The idea of organization in the definitions of Spencer and of Ward is too mechanical an explanation to be entirely satisfactory. It describes one of the external manifestations of life and is more applicable to physical than to social and mental development. For example, it is evident that a bird is more highly organized than a mollusk, and a man than a fish. It

¹ Outlines of Sociology, p. 45.

is also true that with mankind some brains are more highly organized than others. But that superior type of individual life realized in better adaptation to society is not adequately expressed in terms of structure. The criminal does not represent so high a form of life as does the socially adapted or moral man; yet to prove this on the basis of brain structure would be difficult. Two individuals with equally complicated brain structure might attain different degrees of life.

From the philosopher's point of view Mackenzie arrives at the conclusion that the individual ideal lies in "self-realization." This phrase, signifying the full development of the inherent qualities of every individual, might be interpreted to mean much the same as "the maximum of life"; but on the whole it seems to imply an ideal too immediately individualistic and fails to describe accurately the long process of evolution. Self-realization means the development of every individual according to his capacity; and nature has never worked for this end. On the contrary nature seems to be careless of the life of the individual, sacrificing continually the individual to the species and destroying the weak that the strong may inherit the earth. Through such a sacrifice the individual may of course find the fulfilment of his destiny in the general life process, but elimination cannot in any true sense of the word involve self-realization for the individual. It may of course be argued that, though development in the past has required the sacrifice of individuals in tremendous numbers, such extreme sacrifice will in the future become less and less necessary, and the final state will be one in which all may develop without the sacrifice of any. In reply to such a contention it may be admitted that nature's process of elimination and survival has become modified in human society, and probably will be modified much more in the future, that it is even possible that the elimination of individuals for the good of the whole may eventually cease; but that the sacrifice of individuals for others, even such sacrifice as makes complete personal development impossible, will ever wholly cease is unlikely. There may exist always an inconsistency between the promotion of the highest form of life and self-realization for every individual. All things considered then it seems evident

that the term self-realization is inadequate to describe the process of evolution; its action in the past and probably its course in the future may be more comprehensively stated as the development of higher and higher forms of life and its goal the maximum of life.

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CHAPTER III

THE SOCIAL IDEAL

By the social ideal is meant the most desirable form of relationship of individuals to one another in society. It has reference to the perfection of the social organization. It would be impossible however to determine the details of the ideal social organization. Social relationships are continually changing, and the future organization of society cannot be foreseen. This ideal refers rather to the general basis upon which social relations will be established. Will they be based upon equality or inequality? Will there be class distinctions, or hierarchial gradations?

The Development of Social Relations. Assistance in the solution of this problem may be obtained by a brief survey of the past development of social relations, just as a survey of the development of the individual was used as an aid in determining the individual ideal. Among the most primitive peoples a rough equality existed on the low level of mere rudimentary development for all; but soon within the group natural inequalities caused an emergence of leaders and slight differences of social position. A wider cleavage of social classes arose later out of group conflict. War and conquest resulted in the complete subjection of one group to another; and led to the institution of the slave or the caste system. This subjection of one class to another was general among early civilizations. Sometimes differentiation was confined to two classes, and sometimes several classes arose in the same society. From this period on the history of class relationships was characterized by a gradual amelioration in the lot of slaves until finally social conditions were reached which required the abolition of this form of subjection. In many places slavery was replaced by serfdom, which was a form of partial subjection. Finally with the growth and extension of industry the wage system replaced both serf-

dom and slavery, and physical freedom for the lowest class was won, for the expansion of the industrial system necessitated the free movement of labor from place to place according to the requirements of production.

The attainment of physical freedom, though an important step in the emancipation of the subject classes, has not been the only gain achieved. Intellectual freedom, another indispensable requirement, has been achieved by gradual steps, the Reformation marking the beginning at least of this important struggle, — a struggle which has continued to be favorable for the majority until now in the most advanced countries individuals are generally permitted freedom of thought. The contest for political freedom began with the intellectual changes of the eighteenth century and the French Revolution, and this contest is still being carried on over the greater part of the civilized world. These advances in the attainment of physical, intellectual, and political emancipation, together with equality before the law, and freedom in the marriage relation, have been great landmarks on the road to equality. The winning of the greatest struggle of all, — the attainment of economic freedom — alone remains to make the emancipation complete. Only after economic freedom is achieved will other forms be completely realized.

Democratic and Aristocratic Ideals. From this review of the changes in the relationship of classes, a statement of the final goal of the social relation may be formulated. From the terms used in the preceding discussion it might be supposed that complete freedom would be the social ideal. But the idea of freedom is of individual rather than social significance; and, if deserving of a place among possible ideals, it would represent a goal for the individual rather than a form of social organization. Freedom, however, is not so much a final goal even for the individual as it is an immediate aim, or preliminary condition to be achieved, in the course of man's progress towards the ideal. After a given stage of social development, individual freedom appears to be an indispensable condition for the realization of higher forms of life.

The gradual attainment of individual freedom has brought

about increasing degrees of social equality. And the question is whether this movement will continue until absolute equality is realized. From the gains already made, complete equality might seem likely to become the final result; but such an end is by no means certain. Two distinct ideals have been formulated by those who recognize in a general way the trend of events, and these may conveniently be called the democratic and the aristocratic ideals. The former looks to the practical elimination of all inequalities; and the latter, holding that individual differences are natural and inevitable, maintains that society should continue to be based upon superiority and subordination of individuals if not of classes. These ideals, or points of view, may merely represent different sides of the same truth; but they are usually interpreted in too extreme a manner to be compatible. Inequalities, or variations, are a biological as well as a social phenomenon, and are a necessary condition to progress. Their elimination would be both impossible and undesirable. On the other hand existing inequalities are chiefly the result of social conditions, past and present, and are altogether too extreme to be natural or inevitable. If all members of society had the opportunity to develop their native talents solely through their own efforts without unequal assistance from external conditions, wide inequalities represented by class distinctions would to a large extent disappear. Precisely to what extent inequalities would be eliminated is impossible to say; but artificial inequalities would gradually disappear, and social differences would correspond roughly to natural variations. For this ideal social relation Ward has proposed the term "sociocracy" which, he says,¹ "recognizes natural inequalities and aims to abolish artificial inequalities." This situation would guarantee the maximum amount of development, would give the only true basis for competition, and at the same time would permit sufficient differentiation to ensure progress.

Democracy as the Ideal. Inasmuch as the term sociocracy has not met with general acceptance and as democracy is frequently used in the same sense, it may be best to continue to employ the latter term provided its meaning is not mis-

¹ Outlines of Sociology, p. 45.

understood. Accordingly the social ideal may be said to be democracy, in the sense of equality of opportunity, rather than of a dead level of uniformity. Democracy does not necessarily mean, however, that all individuals will develop to the highest degree the abilities which they possess. In fact it has just been argued in the preceding chapter that such a condition might be inconsistent with the attainment of the maximum of life. The different parts of society are closely interrelated, and the subordination and sacrifice of some may be necessary for the good of the whole; but unavoidable sacrifices should be individual in character rather than such as to necessitate the permanent subjection of whole classes. In an earlier period of development progress may have been most easily achieved under a system of class distinctions; but such a relationship seems to have served its purpose, and society is now gradually passing from the stage of inherited social differences and class distinctions to the higher stage of equal opportunity and division of labor.

The Organic Concept of Society. A group of early sociologists devoted themselves to an analysis of the points of similarity between society and an organism. Herbert Spencer, while rejecting the analogy as a valuable concept, reviewed the points of similarity between the two as follows: ¹ — Society resembles an organism in that it grows; it undergoes progressive differentiation of structure; and at the same time it shows progressive differentiation of function and mutual dependence of parts; and usually the life of the aggregate is much longer than the lives of the units. Society differs from an organism in that it forms a discrete rather than a concrete whole; it is asymmetrical rather than symmetrical; and it is sensitive in all its parts instead of having a single sensitive center. This last difference would alone make it impossible to compare society to a high grade organism. In fact it does not closely resemble any known organism, though the suggestion has been made that it may resemble a polyp. In addition to the contrasts which Spencer notes, the term organism implies a rigidity of

¹ Spencer, H., *Principles of Sociology*, Vol. I, Pt. 2, Ch. 2. See also Ward, L. F., *Outlines of Sociology*, Ch. 3.

organization which is not applicable to society. The cells of a member of an organism die and are replaced by other cells which carry on exactly the same functions. In society on the contrary variations are so common that it is never certain that children will do the same work as their parents. They may be fitted for a higher or a lower position in the social order; and social conditions should be so plastic that individuals may easily be adjusted to the positions for which they are best fitted. The suggestion of an organism therefore does not seem to be very helpful to the student of society, and it may even prove to be quite misleading. The term "plastic organization" seems to express more accurately the social relationship than does the term organism.

Fraternity as the Ideal. Mackenzie in his discussion of the social ideal comes to the conclusion that it may best be expressed by the word fraternity; and there may be no inconsistency between the idea implied in this term and democracy. Fraternity seems, however, rather to emphasize the spirit of the relationship than to indicate any particular form of social organization. Still it does seem evident that complete brotherhood could never be realized in any society where there was any degree of enforced subjection of individuals or classes.

Conclusion. To recapitulate, it appears that there are two great movements to be distinguished in the social life of the present time, represented by the individual ideal and by the social ideal, — the development of higher forms of life and the attainment of more democratic social relations. Furthermore these are the only movements which are taking place. All changes in society which are desirable contribute to one or the other of these ends. And all changes which do not contribute to the one or the other are either undesirable or superfluous. Mackenzie¹ in his final analysis of social progress does give three instead of two great processes: — (1) individual culture, (2) the conquest of nature, (3) right social relations. But it is not clear that the conquest of nature is really a separate end in itself. It is desirable only to the extent that it assists individual development. And, although it is extremely important

¹ An Introduction to Social Philosophy, p. 297.

as a means, I do not believe it has sufficient distinctiveness to be represented as a separate ideal. Individual culture and right social relations seem to be sufficiently comprehensive to include all the great processes in social evolution and these two are so closely related that they may almost be merged into one, — individual development.

Relationship of the Individual and the Social Ideals. The relationship of the two movements represented by the individual and the social ideals remains to be discussed. Do they represent separate and distinct ends, or are they part of one general process? If the latter is true, which is the more important? Is either one distinctly a subordinate and secondary process? These questions involve the consideration of whether society is an end in itself, and upon this point opinions differ. Should we anticipate that society will develop into a real organism made up of individual units as an animal is made up of living cells? And if so would this organism be the higher form of life which is to be next evolved? And will further individual effort, therefore, be entirely subordinated to the welfare and growth of this larger being that has arisen? Or, on the other hand, should we suppose that individual development, which has been going on since the dawn of life, will continue to be the all important movement and that social relations are merely one of many new conditions which have appeared in the course of this development and have stimulated it to new and higher planes? From this point of view social life would present a new form of environment, just as at an earlier stage the land came to be superior to the water as an environment for animals. Although social life arose at a late stage of animal progress it is not a temporary condition. Human beings will remain permanently in societies just as animals continue to make use of the land. If this view is the correct one, as I believe it is, then the movement for the perfection of social relations is subordinate to the development of life, although it does seem to be of sufficient distinctiveness and importance to be presented as a separate ideal.

Both of these ideals have been clearly recognized in the past by students of society; but one or the other has appeared to be

of the greater importance according to existing conditions. When social contacts have been few or weak, personal development as an ideal has frequently been emphasized, as was the case with the Hebrews, and again in Europe during the Middle Ages. On the other hand, where populations have been dense and social relations complicated, the imperfections of the social organization have forced themselves upon the consciousness and the social ideal has become the important one. We are now passing through such a period, and it is quite true that social relations may be the most important problems for immediate solution. But our discussions of social problems will be more illuminating and our efforts at social betterment will be more rational, if we bear in mind that the perfection of the social organization is not the chief end; but that it is, like the conquest of nature, a means or an instrument whereby the continued development of the individual is made possible.

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CHAPTER IV

ADAPTATION

Turning now from the discussion of the ideals which present social progress in its most comprehensive aspects, we may next consider the more specific forces and processes of social evolution. The evolutionary process has been represented as generating higher forms of life, and the question now concerns the reasons for these progressive changes. Why has life evolved instead of remaining stationary? What has been the motive force causing superior forms of life to succeed inferior? The answer is to be found in the process of the adaptation of the individual to his environment. Two factors have existed from the start: man, or if we wish to go farther back, the individual animal, and the environment; and it has been the continuous adjustment of these two factors to each other which has caused progress.

Progress Requires a Changing Environment. Professor Patten¹ has shown that the great steps in progress have not been achieved by the adaptation of man to a single environment. They have resulted rather from his adaptation to a series of environments, or to a continually changing environment. If man lived in an absolutely stable environment, he would progress so long as he was adjusting himself to that environment; but the time would come when he would be satisfied with that adjustment, and would make no further effort to improve his condition. His activities would be controlled by habit; and progress would soon become imperceptible and finally cease altogether. It is only as the environment changes, and new desires arise to stimulate man to new activities, that continuous progress is assured. The conclusion must not be drawn however that all modifications in the environment stimulate progress.

¹ Theory of Social Forces.

Just as some variations prove to be superior to the original form and some inferior, so some alterations in the environment prove to be desirable and others undesirable. However, the formula for progress cannot be stated in terms of the environment alone without reference to the organism. Progress depends also upon the activities which the environment stimulates, and these differ at different periods in the evolution of the individual. In early stages of development a change to a more complicated environment seems to have been stimulating; but the advantage of complexity has a limit and in later periods of culture change to a simplified environment sometimes allows greater freedom for mental activity.

In addition to the stimuli arising out of the changes occurring in the environment itself, a new impetus also is given to progress when individuals or groups are forced through the intensity of the struggles for life from old environments to new ones previously existing but not fully utilized. The new environment, in offering greater opportunities to those capable of utilizing them, stimulates development in new directions.

Examples of important modifications in physical environments may be found in geological or climatic cycles. At certain periods the water supply has increased, thereby permitting the existence of larger populations and stimulating the passage from a pastoral to an agricultural mode of life. At other times a decrease in the water supply, by making a country more arid, has necessitated a reduction in the population, thereby stimulating migrations or causing a return to nomadic life. Such an environmental change with its accompanying adaptations marks a period of retrogression instead of progress. And migrations also, in forcing a redistribution of the population, have sometimes resulted in the discovery of superior locations where higher forms of civilization have arisen. But at other times migrants have been forced into inferior locations where they have ceased to progress or have even degenerated.

Examples of changes in the social environment are numerous. Mere mechanical inventions serve to alter social conditions. Sometimes they create a series of new occupations, and persons who are adaptable enough to follow these innovations escape

for a time the severity of competition in the old employments and develop more freely on a higher level. Immigration into the United States has greatly altered the social environment. It has increased the severity of competition, giving opportunity to the more intelligent of the old inhabitants to enter new and superior occupations and forcing the less resourceful out of the ranks of self supporting laborers into the ranks of the dependents, that is, into an inferior environment which has caused deterioration.

To profit from modifications in the environment requires a high degree of adaptability on the part of the individual. And this adaptability implies a superior development of the nervous organization. In the course of evolution the development of the nervous organization has been continually stimulated by environmental changes. These changes have offered an immediate advantage for the survival of those individuals who posessed the adaptability to take advantage of them, while those who lacked adaptability were eliminated.

Two Forms of Adaptation. In order to explain the detailed processes of adaptation, it will be necessary to distinguish two kinds of environments and two forms of adaptation. The two kinds of environment are the physical and the social. The physical environment will in this chapter be used to include both inorganic nature and lower organic life, though later it will be necessary to separate the two. The social environment comprises both human beings and the products of their industry, or what Spencer has appropriately named superorganic products.

Adaptation to both these environments may be passive or active. The terms passive and active refer here to the individual rather than to the environment, so that passive adaptation means the alteration of the individual to conform to the environment; and active adaptation means the alteration of the environment through the activity of man to suit his needs. With the lower animals and with primitive men passive adaptation is the chief force at work; but as man's intelligence increases he submits to this process to a smaller and smaller degree, though he can never entirely free himself from the influence of the physical environment.

Passive Adaptation to the Physical Environment. Perfect adaptation to the physical environment would involve three conditions: first, individual survival; second, a reasonable degree of health; and third, continuous group survival through reproduction.

Individual survival. The chief means of adaptation to the physical environment is by the selective process. Those who cannot adapt themselves are eliminated, while the more adaptable survive and reproduce their kind, their offspring inheriting their superior powers of adaptation. The selective process is seen most clearly where individuals or groups have moved from one environment to a very different environment, such as the English to India, the Americans to the Philippine Islands, or the Negroes from the southern to the northern states. Such migrations are followed by a higher rate of mortality than was common in the previous environment, indicating the elimination of those incapable of adjusting themselves to the changed conditions. The selective process is however always operating to some extent among peoples who remain in a given environment. Infants varying from the normal in such ways as to make adaptation impossible are eliminated; and only those survive who possess the necessary characteristics for adaptation. This continuous process of adjustment is one of the factors in a high infant mortality.

In addition to the method of selection through elimination another less extreme process of adaptation may also be detected. If changes in the environment are moderate the average individual undergoes certain physical alterations, which after a time leave him better adapted to the new environment than he was at first. Modifications of this kind are made in such cases as changes in altitude or in climate. The body becomes adjusted to new conditions and may then function just as well as in the previous environment. Such bodily changes represent the process of adaptation in those who survive. Those who are unable to make the physical adaptations are much more likely to be eliminated.

Health. The second test of adaptation simply means that individuals who do adapt themselves to a new environment

should not merely survive but should show a reasonable amount of health and vitality under the new conditions. The standard of vigor however cannot be made that of the previous environment, because some climates are much less stimulating to everyone than other climates. The standard must be found rather in the average energy of the native population. The point involved here is that some persons in changing their environment undergo what may be called a partial adaptation. With care they are able to survive; but they never show the health and vigor which could be expected in that particular location.

Group survival. The third evidence of adaptation, the power of reproduction, is a racial rather than an individual matter. The fact, which is not well understood, seems to be that certain people who live in a new environment in comparative health are unable to rear there such a healthy and numerous offspring as they could have in their native environment. The difficulty may be merely a matter of the survival of infants rather than the numbers born. But if a people are unable to keep up their numbers in a particular environment from any cause whatsoever, they cannot be said to be adapted fully to that environment. An example is that of the English in India who are moderately well adapted in the first two ways but are not yet adapted in the racial sense. In fact Professor Robert DeC. Ward says,¹ "Acclimatization in the full sense of having white men and women living for successive generations in the tropics and reproducing their kind without physical, mental, and moral degeneration, — i.e. colonization in the true sense, — is impossible."

Active Adaptation to the Physical Environment. Passive adaptation, at least in its more extreme forms, is being continually resisted by man, who seeks to avoid the painfulness of the selective process by quicker and more agreeable methods of adaptation. For this reason man alters the environment in numberless ways to make it better suited to his needs. He cuts down forests to clear the land; he drains or irrigates land to increase food supply; he dredges harbors and rivers, and

¹ Climate, p. 204.

builds highways, to transport food and other commodities and to permit a better distribution of the population; and finally he destroys injurious animal and vegetable life to decrease directly disease and death.

Notwithstanding man's ingenuity in the adaptation of nature to his needs, certain natural forces like climate he is unable to alter, so he builds houses, wears clothing, and in other ways protects himself from the deleterious effects of these forces. These protective measures should be distinguished from active adaptation proper. They fail to change the natural environment. It remains as it was. But they relieve man to some extent from the necessity of submitting to passive adaptation. Hence protective products of industry should be classed as intermediate measures between active and passive adaptation. They are properly superorganic products and belong to the social environment.

Adaptation to the Social Environment. *Superorganic products.* Adaptation to superorganic products is still so imperfect that elimination is of frequent occurrence. The greater part of the excessive death rate in cities is due to this defect rather than to imperfect adaptation to the physical environment. Deaths due to insanitary tenements or to other adverse living conditions, deaths due to impure foods, to accidents in factories and on railroads, are all examples of this kind of poor adaptation. The remedy for such unfortunate conditions does not lie of course in passive adaptation at all, but in a change in the character or the use of the products of industry. These products are designed to protect man from the physical environment; but when they themselves prove a cause of death, it is evident that they are not performing their proper function, and they should be altered to become true preservers, not destroyers of life. Inasmuch as active adaptation would seem to be superior to passive, the conclusion might be drawn that it should be uniformly favored; but the exclusive use of active adaptation is not always possible. In deciding which method should be employed we must consider first whether it is feasible to alter the environment, and, second, whether the action of an environment is truly selective; that is, whether it eliminates the inferior

physically and socially and permits the superior to survive. In making the choice we must bear in mind also the fact that passive adaptation is costly in life, and active adaptation is costly in labor. It is conceivable that individuals could be evolved adapted to dark and insanitary tenements; in fact, the Jews now show greater powers of survival under such adverse conditions than do other races. But such a process would not ensure the survival of the socially superior, and hence it would involve unnecessary cost in human life and therefore be useless. Deaths from such calamities as railroad accidents furthermore are not selective in their action at all. In all such cases therefore the method to be employed to ameliorate conditions is furtherance of active rather than of passive adaptation.

Adaptation to superorganic products, like that to the inorganic environment, takes place in various ways less extreme than elimination. New methods of production affect our occupations and permit the existence of larger populations; improved means of communication increase social contacts and affect our thoughts and our behavior, alter the character of our dwellings, and influence our social life. We produce certain things when we believe we are ready to utilize them; but, having produced them we are often obliged to adapt ourselves to them in indirect and unforeseen ways.

The human environment. Adaptation of men to other members of a group is more perfect than it is to superorganic products; and actual elimination through it is comparatively infrequent, though deaths from suicide or homicide show that even in social relations the elimination of the unfit does occur. In the process of adaptation of men to one another within the group the active and passive forms are not easily distinguished in practice. Individuals and society give and take. Occasionally an individual succeeds in impressing society with his own views and consequently modifies its activities; but the more evident process is the molding of the individual by society in conformity with it; and for this purpose society uses the forces of law, of education, and of public opinion. Of course individuals may alter society more easily if they occupy positions of authority; for otherwise they must make continued appeals to the reason

or to the emotions of others until the minority becomes the majority, or until those in authority are won over. Adaptation of groups or nations to one another is in a much more rudimentary stage, as is shown by the continual recurrence of war with the resulting subjection or absorption of the vanquished.

Conclusion. From this brief outline it appears that in the course of social evolution adaptation to the physical environment, represented broadly by economic activities, is predominant at first; but that later, as social and mental products increase, adaptation to the social environment becomes relatively more important. This does not mean of course that economic activities cease or that physical adaptation is perfected; but that development is realized more and more through cultural activities. Physical adaptation continues to be the more important from the point of view of survival, but social adaptation is of more importance from the point of view of evolution. Progress through the increase in social products and through the perfection of social relations may be limitless.

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CHAPTER V

THE THREE PROCESSES OF SOCIAL PROGRESS

Organic and Social Evolution. In the preceding chapter the term adaptation was used comprehensively to designate the general method by which evolution is accomplished. If we now examine the method of evolution in greater detail we shall find that it takes place by means of three great steps or processes. These processes of social evolution are so similar to those of organic evolution that a comparison of the two will make their meaning clearer.

Romanes¹ gives the three processes of organic evolution as heredity, variation, and isolation. Heredity means the transmission of traits from parents to offspring. Variation refers to the innumerable characters which appear in individuals to differentiate them from the type, indicating that the transmission of characters from generation to generation is not invariable. Isolation means the prevention of intercrossing of individuals with others of the same species. It is a broader term than selection, because the mere elimination of the unfit is only one of several means for the prevention of intercrossing.

The corresponding processes in social evolution may perhaps best be described by the terms integration, variation, and selection. Integration here refers to the process of socialization and means the creation of sufficient resemblance among individuals so that they may act together as a social group. Variation has the same meaning in social evolution as it has in organic evolution. It refers to new ideas, or methods of action, appearing in society as departures from the type, their appearance showing that here again integrations are not absolute. Selection refers to the utilization of one or another of the variations which arise in a society. In the social sphere, contrary to the process in

¹ Darwin and after Darwin.

the organic world, selection comes to be a term of broader application than isolation, for here evolution is no longer blind. The selection of any one among several variations may be made by conscious choice, hence isolation appears as one of several methods of selection.

The more detailed processes of social evolution take place therefore as follows. Social evolution in its broadest aspect is brought about by progressive adaptation to a continually changing environment. And this adaptation is accomplished by a continual repetition of the three great processes, — integration, variation, and selection. Consider, for example, a social group with its individual units sufficiently alike to permit normal social life. A new variation appears, perhaps in the form of a mechanical invention, or possibly as a new experiment in government, or as a new ideal in manners or in morality. Such a variation is presented to the members of a group and is subjected to all the influences favoring or opposing change. Finally it is, let us say, accepted and put into operation. At first this variation is not desired by all; but eventually all must conform to it sufficiently to bring about united action, and the group then shows a new integration or unity which includes the variation. This completes the process of a social adaptation to a slightly different environment. If the variation proves useful, society has taken a step in advance; if it proves undesirable, it is given up and a new variation is tried.

Integration. Integration, as a step in social progress, is basic and absolutely essential. Without it no group action could take place, and individuals would have to develop as isolated rather than as social beings. Reformers, who are concentrated on change, are likely to belittle the importance of integrations, while others tend to take them for granted without special analysis. Starting with physical similarity in individuals as a basis, that is, with racial likeness, the forces of integration are so strong that social unity is almost sure to follow. Social integration is the normal outgrowth of physical similarity in individual units; and where marked dissimilarity exists, integration is necessarily imperfect and difficult to maintain. Any attempt to force it upon dissimilar elements is contrary to the

natural process and of doubtful value. Although in modern society the forces of integration are strong, in the early stages of civilization they were weak. Bagehot has ably demonstrated the difficulty, as well as the necessity, of forming a "cake of custom" in primitive societies.

Two Laws of Integration. Before discussing the methods of integration it will be well to point out two of its characteristics, or laws. First, integrations tend to form in ever widening circles, including within their scope larger territories and larger populations. This fact may be illustrated in almost all aspects of social life. The political unit, for instance, tends to become larger and larger. States widen their boundaries and governments extend their sovereignties over more and more people. Similarly economic life can no longer be confined to a limited area, but has expanded even beyond the boundaries of states, and business interests include practically the whole civilized world. Intellectual interests, in the same way, and manners and customs, are also continually expanding, showing the growth of intellectual as well as physical integrations. It is true that epochs do occur when the law of dispersion, a tendency seemingly reverse, appears to be dominant. Large groups break up into small ones and people scatter to new territories. States subdivide, and social life in general appears to narrow rather than to widen. Such dispersions should, however, be regarded as temporary reactions in the social process rather than broad tendencies comparable to the law of increasing social integrations. Enlargement of the circle of integration may be carried too far and include peoples too dissimilar to one another, or physical boundaries may become too wide, to be conducive to a unified society. Then societies fall apart only perhaps to reunite later under more favorable conditions.

The second law of integrations is that, as their area becomes enlarged, their intensity lessens. This follows from the fact that large numbers cannot be so homogeneous as small numbers if only because of the diversities which inevitably appear in the larger environment. This law of lessening intensity should not be interpreted to mean that all large societies are less homogeneous than all small societies. Small societies may of course

be made up of very diverse elements. It means rather that, as the same society enlarges, a greater and greater number of diversities appear and therefore integration is less absolute, though it may still be sufficient for the particular purpose for which the society was organized. The integration of the British Empire as a whole is less strong than the integration of the people of England. The economic unity of the commercial world is not so complete as the unity of economic organization in any one country.

Forms of Integration. The numerous forces which cause integration may be divided roughly into coercive and voluntary. While these terms indicate the fundamental differences in the types of integration, the two types do tend to merge into each other and are not always distinguishable.

Coercive Integration. Coercion, as a unifying force, may be of various kinds and degrees of intensity. It may mean the direct use of physical force, or it may mean a resort to public sentiment with physical compulsion in the background to be employed as a last resort if other influences fail. Coercion in its extreme form is used by conquerors on a conquered people. The conquerors may incorporate the conquered into society as a slave class, in which case physical violence is always the immediate coercive force; or they may merely assimilate a subject people, and then coercion lies in restrictions as to language, occupations, or dwelling places, physical violence being resorted to only in cases of extreme revolt. Attempts at assimilation by coercion alone are seldom successful. They bring about the external appearance of similarity without the spirit of unity. In fact the greater the external coercion the stronger becomes that spirit of antagonism which inevitably weakens the social structure. Assimilation usually becomes more and more successful with succeeding generations reared from the start under the new conditions, yet this is largely because the force of coercion gradually relaxes.

Another kind of coercive integration is taking place in economic life through the forces of competition. These forces may cause weaker competitors to change their methods of production or even abandon a field to stronger rivals, thus bringing about

greater uniformity in the economic structure. If such changes are necessitated merely by new external conditions, without personal compulsion, the readjustment is for the advantage of all and a new integration may be produced in spirit as well as in form. If the change comes from personal compulsion, as sometimes happens in what is known as unfair competition, antagonisms are aroused which may weaken the unity of the whole structure.

Attempts to force integration in intellectual lines have been common, particularly in the case of religious beliefs. Religious organizations have gone on the supposition that united action was impossible without similarity of belief. And almost all religious organizations have tried to force this similarity by threats not merely of immediate but also of eternal expulsion from their organization, as a penalty for the introduction of any variation from the established belief. Sometimes indeed coercion has gone far beyond the mere threat of exclusion, and physical violence has been resorted to to preserve unity of belief. From the nature of the case such methods must fail to bring about desired results. Integration to be strong must have unity of sentiment as well as of form. Physical force produces physical results; social influences are needed to bring about social uniformity; intellectual forces alone can produce intellectual unity.

Education is another influence for integration which is coercive in its nature but which is devoid of the character of physical compulsion so prominent in other forms of coercion. Education in the home and in the school is the chief instrument of conformity between the new generation and the old. Education has a twofold purpose. It is used partly as a means of discipline, and partly as a means of imparting information. In the latter function, education as an integrating force has this peculiar characteristic, that the young, ordinarily having no preconceived ideas or prejudices to be overcome, accept the teaching of their elders; and unity of knowledge is brought about with little opposition. Education to promote discipline, however, encounters the resistance of untrained instincts and emotions. Conformity in manners therefore is accomplished with difficulty and

requires a greater amount of coercion than does conformity in thought. On the whole education is a powerful means of integration. In fact society tends to use its schools, especially the advanced grades, too much as mere agents of conformity instead of using them as means of mental stimulation and for the development of individuality.

Closely connected with education as an agent of integration is the force of public opinion. Public opinion affects all who have social consciousness; but if we separate it from the consciously organized educational system, we find that it has far greater influence over adults than over the young. Society is not slow to show what it thinks of people who conform or who fail to conform to the established modes of conduct. Public opinion asserts itself both in the form of approval and of disapproval; but disapproval is the form most commonly used. If, for example, an individual conforms to the prevailing fashion in dress in a manner noticeably felicitous, he enjoys the admiration of all about him. But an ordinary degree of conformity is assumed and the person who observes conventions merely escapes the unpleasantness of being conspicuous. But when anyone departs too far from the prevailing fashion, or when indeed in any act he fails to conform to the styles or ceremonies adopted by society, he is made to feel the displeasure, shown perhaps in ridicule, perhaps in open criticism, of the guardians of social conventions. In the last resort he may even be made a social outcast. Extreme isolation usually suffices to bring about conformity again. More frequently, however, isolation is partial and serves merely to drive the offender into another group less discriminating in its tastes. Although the force of public opinion may often be used in a harmful or even brutal manner, it is on the whole an indispensable social force. Any harm resulting from its use may be traceable not to the weapon itself but rather to the fact that society often fails to distinguish the important from the unimportant in social conventions.

Voluntary integration. In considering integrations brought about by voluntary action, we turn from the point of view of society to that of the individual. Coercion is exercised by society on the individual, or by the strong on the weak; but

choice is an attribute of the individual himself. Strictly speaking individual action is merely the obverse of social action, and the one does not exist without some form of the other. For example, even with society in its most compelling mood, the individual may still be said to act from choice even though that choice is made merely to escape certain punishment. On the other hand, when the individual appears to be most free to choose his course, it would be unwise to conclude that society was absolutely unconcerned and exercised no influence whatsoever. Ordinarily, nevertheless, the one force or the other predominates, so that integration may be said to be brought about either by the force of society or by the choice of the individual. As the relative influence of society and of the individual is merely a matter of degree, instead of separating these modes of action into distinct groups, it is better to trace the varying degrees of influence of society from its most compelling acts through physical force to its milder manifestations in public opinion, and from there on to the point where social compulsion seems to disappear altogether leaving individual choice as the predominant factor.

Individual choice itself is of two kinds. In many cases the individual chooses a particular course of action primarily from convenience without any standard of desirability in his mind. In other instances he has very distinctly in mind the superiority of a particular way of acting and decides accordingly. It may be said that a moral element is present in the second but not in the first class of choices, provided the word moral is not used in too restricted a sense. Conformity merely for convenience will be found to be prevalent if the ordinary acts of life are analyzed. We eat the prepared foods that are put upon the market; we submit to a color or a cut of garment which we are informed is the style; we eat our meals at the hours when others are eating theirs; in a public meeting we applaud when others applaud; in a church service we pray when others pray. To be sure not all these acts can be traced to the same motive. But if we stray too far from the prevailing fashion public opinion soon brings us into line again. Sometimes we appear to be acting from habit, though habit cannot explain the beginnings of an

action. And sometimes we perform an act from a definite motive, while others are doing the same thing without a definite motive. It is this general disposition towards imitation on the part of individuals that gives the final touch to social integration.

In contrast to this semi-blind conformity is that which comes through definite conviction of the desirability of an act. Certain individuals analyze their motives and act through reason much more than do others. This inclination will be considered again in the discussion of selection. It is sufficient to note here that integrations brought about through conviction are much stronger than those arising from imitation.

We have now traced the character of social integrations from those which are enforced contrary to the will of the individual, through those in which the individual is indifferent, to those in which the unity results from conscious desire on the part of the individual,—three types of integration differing according to the difference in character of the unifying forces.

The Form of Integration Affects the Character of the Group. The three forms of social cohesion just mentioned represent progressive stages in the development of the group. In ordinary cases it is in the last stage that individual units exercise the most intelligence and enjoy the greatest freedom, with the result that integration is stronger and group action most efficient there. When a group is held together by force much of the energy of the leaders must be devoted to maintaining group unity and therefore less remains for group action. But when a group is held together by the natural cohesion of its units all energy may be used in group action. The difference between the two may be illustrated by the example of two armies, in one of which the soldiers are made to fight against their wills, while in the other the soldiers believe in the righteousness of their cause and willingly fight to uphold it. Another characteristic of the voluntary form of unity is that it is much better adapted to progress than the other forms. In groups where the unity is forced, the governing class permits no changes except those which increase the efficiency of group action without menace to its own position. Changes increasing

individual freedom cannot be permitted for fear the group will fall apart or so alter its nature that the leaders will suffer loss of power.

The second form of cohesion, characterized by increasing imitation, gains its efficiency from the comparative stability arising from customary conduct among group members. When changes do occur or when several possibilities of action present themselves, members are likely to follow their leaders from personal motives rather than from acts of judgment, and a change may not be in the direction of progress. Emotional excitement rather than the control of reason characterizes the rank and file in such a group.

In the third form of cohesion where individuals join a group or take part in an action because they are convinced of its desirability, they will leave the group or alter its nature only after they are convinced that another group or another mode of action is preferable. In this case the judgment of the rank and file is discriminating. Errors of judgment do occur to be sure; but mistakes are much less likely to be made, if individuals deliberate over the results of action than if they do not.

Variation. As integration stands for stability and order in society so variation indicates change and progress. Stability is essential to social action, while change, requiring new adaptations, involves loss of time and energy. The desirability of change is often over-estimated. A society which is continually changing is consuming its energy in new adaptations instead of in actual accomplishment. Moreover there is the additional danger that continuous change will cause a society to lose control of itself and enter a stage of anarchy. The situation of the group is similar to that of the individual who cannot actually accomplish his work so long as he is continually experimenting with new methods of doing it. While one method may be superior to another, some definite scheme must be adopted before the work can be done. Change is desirable only when the advantage of the new method more than compensates for the loss involved in the new adjustment. Furthermore integration requires more time in large societies than it does in small societies, hence with the former changes should follow one

another more slowly. Most societies, however, offer so many possibilities for improvement that a moderate amount of variation is usually desirable. Between the forces of integration and of variation, the danger is not ordinarily that change will be too rapid, but that integration will prove so strong as to blot out variation altogether with stagnation as the result.

Absolute and Relative Variations. Variations are either absolute or relative. Occasionally an idea arises which is entirely new to all societies, and which may therefore be called an absolute variation. More frequently one society or group merely borrows from another. In such a case, as the idea is new to the borrowing group, the effect is similar to that of an absolute variation; yet, as the idea is not new to all societies, it may properly be called a relative variation.

Absolute variations are often more easily adopted than relative ones. If, for instance, an invention arises as a natural product of conditions within a group, it may be introduced there with the minimum of friction. But when an idea is borrowed from another group usually little allowance is made for differences in the conditions within the two groups, and it may be a long time before the new idea is thoroughly adjusted to the new environment.

Conditions Favoring Variations. Variations flourish best when the forces of integration are already somewhat relaxed; and, as has already been pointed out, integration is likely to be less intense in a large group than in a small one. Variations therefore are more likely to occur in a large society where the environment is varied than in a small society where the environment is uniform. In the production of variations, however, a still more important factor is the free social intercourse resulting from density of population or from good means of communication, which brings together ideas and stimulates thought. Association of ideas leads to discussion; and discussion first produces toleration, — that is, it introduces the idea that old methods are not the only ones and may not even be the best ones; and, secondly, discussion itself tends to produce more and more ideas. When a variation does occur, other variations are likely to follow and with gathering momentum, for new ideas are the best stimuli to other new ideas.

The best soil for variations to take root in is always the rising generation. However effectually the educational system may be used to promote uniformity between two generations, it never really succeeds in making the new generation exactly like the old. Even when originality and inventiveness in the younger generation are subjected to repression, it still remains more receptive to new ideas than does the older which has become habituated to modes of thought and action. It is an universal truth that the old are more conservative and the young more radical in temperament.

Relative variations occur with increased association and sympathy between groups. The association of groups causes new methods to be learned which had not previously been heard of and increased friendliness helps to force the admission that the ways of the foreigner may occasionally be superior to one's own.

In early times war was the ordinary form of group contact. But war is not the most stimulating form of association; first, because the association it forces is not intimate; and, secondly, because this association is based upon opposition rather than upon sympathy. It does however stimulate ideas because the armies are brought into new environments, and moreover war is often followed by more friendly intercourse. A form of group contact much more desirable arises from normal travel and trade relations. In the Middle Ages the travelling merchant spread new ideas, as well as new commodities, which awakened desires and stimulated production. In modern times travel and trade on a large scale have become the chief means of spreading ideas and creating uniformity of customs. Missionary effort has in many instances been an early stimulus to progress; begun with the professed intention of spreading new religious ideals, it has necessarily carried with it also new secular ideas and methods which have wrought changes in the general social life.

Selection. Selection, the third step in the evolutionary process, is not a chance phenomenon but takes place inevitably whenever variations occur. Although a group may not often adopt a new invention, it has inevitably to decide between the

new and the old; and such a decision is a true case of selection, although if it is in favor of the old method the choice may attract little attention.

We speak of selection as being made by a group, but large numbers seldom select a new invention simultaneously. Ordinarily certain leaders, becoming convinced of the need of a change or the desirability of a new method, suggest the reform; and it is finally adopted or rejected by the group through the process of imitation or that of opposition. Strong opposition may be encountered either from those who oppose all change or from those who wish to see a rival method adopted; or opposition may be reduced to mere inertia on the part of the majority. If the idea is finally adopted by the leaders it spreads through society slowly or rapidly according to the nature of the change adopted. If it is a new system, like a form of government, it must necessarily be put into operation as a unit and people adjust themselves rapidly. If it is a belief, like a new religion or a new scientific conception, it is accepted slowly by the rank and file. But selection of one kind or another must always be made. The problem therefore is not how to cause selection, for that is inevitable, but how to improve the quality of selection.

Automatic Selections. Selections in society are of two kinds, — those which take place automatically, and those which are made by conscious choice. Automatic selections are such as are from the nature of the case inevitable. Man has little control over them. They include those selections depending upon physical or biological conditions and are therefore similar to selections in the lower organic world. They include also selections resulting from isolation in social life; and these are of greater social significance, though they are still practically automatic in their nature. Farmers inevitably select their fruits and grains from among those which will grow in their particular localities. Inhabitants of the tropics do not select their clothing from among the different varieties of furs on the market because all furs are unsuited to their particular environment. These examples illustrate the limitations imposed by the physical environment upon selection; for such selections

are limited not by lack of knowledge but by environmental conditions.

Social isolations determining selection are of many varieties. Some are economic. For example, the poor do not make a selection among the various types of automobiles. With their pennies they inevitably buy bread. This again is not because they are unacquainted with automobiles but because their range of choice is automatically limited by an isolation caused by poverty.

Isolations may also be mental in their nature. Illiterate persons do not make a choice as to which newspapers they shall read even though they can afford to buy newspapers, because they are excluded from the use of all reading matter. Lack of intelligence is continually setting limits to the choice of occupations, and may even determine the method of carrying on a particular occupation, for the unintelligent may be unable to make use of complicated machinery and be restricted therefore to the use of simple tools and primitive methods.

Isolations caused by social customs and institutions are common. We no longer resort to torture of suspected criminals, because our judicial system does not permit it. We do not select one among various types of idols for worship, because our religious beliefs exclude the use of idols entirely.

These various forms of selection through isolation are enumerated not so much because they are unusual or because they offer a basis for a profitable study of the selective process, but because they show that selection by choice in all societies is greatly restricted by limitations over which the individual has little control.

Selection by Conscious Choice. Selection by conscious choice is, in the last analysis, the all important step in the evolutionary process, because through it society may be intelligently directed to higher stages of development. Whenever a variation is adopted, it results in social change; but improvement in social life is realized only when selection among variations is exercised with wisdom and foresight.

Selection by conscious choice is well illustrated in political life when two parties stand for different measures. The leaders

first specify in general terms the policies to be followed, and the voters finally accept or reject them. The responsibility for selection rests partly with the leaders and partly with the followers, the relative amount of responsibility depending upon the character of the population. If the population is made up largely of the amiable imitative type, the leaders will be more dictatorial and will expect the people to follow instructions. If the population is of a more independent and critical type, the leaders will be much more influenced by the wishes of the voters; and the people rather than the leaders will be chiefly responsible for the choices made. Of these types of societies, the imitative is less likely to make permanent progress than is the critical. Where the chief responsibility for the selection of new policies rests upon a few leaders, personal and selfish motives are likely to determine selection, unless the leaders have broad vision and unusual devotion to the common good. With exceptional leaders progress may, it is true, be rapid; but they may be succeeded by narrow and selfish leaders under whom any previous gains may be speedily lost. In the critical type of society, on the other hand, where selections are finally made through the deliberate choice of large numbers, mistakes are more likely to be errors of judgment than perversions of motive. Now bad judgment improves with experience, but evil motives are changed only through regeneration of character. The highest form of selection then is that in which the action of the leaders is guided by the needs of society, and the decisions of society rest upon rational judgment.

Conclusion. In conclusion two points should be emphasized with regard to these three processes of social progress, — integration, variation, and selection. First, progress requires not merely the presence of all three processes, but a definite relationship among them. Integration must not be so strong as to destroy variations; and variations cannot be so frequent as to overcome the stabilizing force of integration; selection must discriminate among the variations or retrogression rather than progress may result. And secondly, the character of each process may be improved and along with it the nature of progress itself. Integrations may be forced or voluntary; variations may

be frequent or occasional, and they may be original or borrowed; and selection may be more or less accurate in choosing the best variations. Progress can still occur even when integrations are forced; and also when variations are few and selection among them is exercised by the leaders, with the consequent adoption of their choice from compulsion or through blind imitation. But progress is much more rapid and assured, if a society is held together by the common consent of its members, if variations are numerous and absolute, and if, among these variations, those suggested by the leaders are finally sanctioned by the rational judgment of all the members of the group.

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CHAPTER VI

THE SOCIAL FORCES

Desire the Stimulus to Action. In the preceding outline of social evolution it has been shown that the course of evolution is towards higher forms of life; and that this development is brought about through the processes of adaptation. It remains now to consider the ultimate cause of change in society. Why does the individual make any attempt to perfect his adaptation to the environment? To say that an individual would die if he did not adapt himself is not a satisfactory answer to the question. Why does he exert himself to keep alive? The lower animals at least have no calculations concerning life and death with an accompanying regulation of action to attain the one and avoid the other. The answer to the question is to be found in the fact that nature has implanted certain desires in the human organism, those desires being accompanied by feelings of pleasure and pain. Sensations are normally pleasurable when the actions producing them are for the welfare of the organism, and they are painful when the actions are detrimental to the organism. And the individual tries to regulate his activities so as to avoid painful and experience pleasurable sensations. In the last analysis then progress is brought about through the attempts of individuals to satisfy desires, the steps in the process being as follows: desire produces effort, effort brings about adaptation, and continuous adaptations lead to higher forms of life. Tracing the cause of progress back to the incentive for activity in the individual is as far as the sociologist needs to go. It is the task of the psychologist and the biologist to analyze the character and origins of the desires themselves.

Desire of one sort or another is always the motive which causes the individual to act. As Ward says: ¹ "The cause, not

¹ Outlines of Sociology, p. 144.

only of the primary fact of association itself, but of all other human activities, is appetite. Whether looked at from the standpoint of function or from that of feeling, i.e., whether we consider the end of nature or that of the teacher, it comes to the same thing. Every act proceeds from motive, and the motive can be none other than the satisfaction of some want. The capacity to want is implanted in the organic structure. It is the necessary concomitant of the capacity to feel. . . . In short, desire, taken in its widest sense, both positive and negative, is the real force in the sentient world. It is the dynamic agent in the animal world including the human sphere, and therefore constitutes the social force." In the lower organisms desires may be comparatively few and their satisfaction accomplished by direct action. Among human beings desires are complex and pleasures aimed at may require much calculation and foresight, and the immediate stages to their attainment may be painful rather than pleasurable; still the action is stimulated by desire and carries with it the hope of a final stage of greater happiness. Although desire is always accompanied by feeling, and the satisfaction of the higher desires is accompanied by a stronger and a more enduring pleasure than the satisfaction of the lower desires, still the pursuit of pleasure itself would be an extremely unreliable goal for the attainment of superior forms of activity. Emotions of pleasure or of pain were not evolved as ends, but as guides to conduct; and the physical desires served this purpose fairly well. But desires are easily perverted, pleasures are elusive; and with the higher activities, the sensations of pleasure and pain are not always sufficiently acute and accurate to guide conduct unerringly. It is perfectly logical to admit that the highest form of life will be accompanied by the highest happiness, and at the same time to deny that a pursuit of happiness will lead to the highest form of life.

Classification of the Desires. Progress therefore originates in the satisfaction of desire; but continued progress is not a matter of one desire nor of a few desires, but of a multitude of desires succeeding one another. If the satisfaction of a few inherited instincts were the only motives for activity, progress would soon cease, for actions would become habitual and un-

varying. The situation would be the same as that of adaptation to a single environment. Continued progress requires a changing environment and successive adaptations; and the chief method of producing the change is through the multiplication of desires. Although specific desires among progressive peoples come to be indefinite in number, they may all be reduced to a few fundamental types. And an analysis of the primary desires will be of assistance in making a systematic arrangement of complicated social processes and institutions. I have made the following classification, not so much with the intention of analyzing all the instincts and desires which may be considered fundamental, as to get at those basic desires out of which great social institutions and activities arise.

I. Physical

- a.* Desire for self-preservation.
- b.* Desire for race continuance.

II. Mental

- a.* Desire for approbation.
- b.* Consciousness of life,
Expressed through,

Morality
Art
Science
Religion

The desires may be classified conveniently according to man's twofold nature. Man is first an animal, and in common with other animals possesses certain inherited instincts essential to the well-being of the species. But man is also a thinking and reasoning animal, and he possesses other desires specially characteristic of his superior intellectual faculties, which are either lacking or rudimentary in animals of inferior intelligence. The former may be classed as the physical and the latter as the mental desires.

Physical Desires. Physical desires may be reduced to two, — the desire for self-preservation, and the desire for race continuance. The desire for self-preservation is a comprehensive term, used to include such instincts and desires as hunger, thirst,

desire for warmth and shelter, and the instinct to shun danger. In fact it includes all those elemental instincts which contribute to the preservation of individual life. The desire for race continuance bears the same relation to the race that the desire for self-preservation bears to the individual. It includes the sex instinct and the parental desire, which together ensure the preservation of the species.

The Desire for Approbation. The mental desires are more difficult to analyze, as they are derived from man's complex mental life. I have separated them into two, which are fundamentally distinct, and have called them the desire for approbation, and the consciousness of life.

In the first of these desires the term approbation is employed in a broad sense. The desire for approbation grows out of the psychological development of the personality through association with others, resulting in a tendency on the part of the individual to accept the opinions of others as guides to conduct. From an early period of infancy the mental growth of the individual is two-sided. On the one side, it is represented by an increasing consciousness of self, the growth of the ego; and on the other side, it takes the form of an increasing knowledge of others, the development of the alter. The infant arrives at self-consciousness through consciousness of other individuals; and his growing consciousness of himself, as a personality, in turn helps him to understand and respect the personalities of others. The recognition and understanding of personality is derived from the association of individuals with one another. From these facts the nature of the desire for approbation may easily be inferred. If one individual develops through increasing comprehension of other individuals, each seeks a standard for his own actions in the actions and opinions of others. To a very large extent every individual is influenced in his conduct by the sentiments of others. When his actions gain the approval of the group, he is satisfied; when they arouse the disapproval of others, he hastens to alter his conduct. The desire for approbation is preëminently the social desire. The perfectly socialized individual is the one who conforms entirely to his group and regulates his conduct wholly from the opinions of others.

The manifestation of the desire for approbation is shown most obviously in what is called social life; that is, social intercourse carried on for its own sake; but it is not confined to that limited part of our social relations. This desire is a directing factor in all association carried on for any purpose whatsoever.

Consciousness of Life. The limits to the action of the desire for approbation may be best comprehended by contrasting this desire with the second psychological desire. While it is true that most of our acts are influenced by the opinions of others, it is also a matter of common observation that some of our conduct is not. There are individuals who are continually departing from the established modes of action, even when it arouses the opposition of their group; while others are inventing and promulgating new methods and ideas, which, although they may finally be approved and accepted, may be started with no thought of gaining the commendation of others. If all departures from custom were examined, it would be found that they originated from a variety of motives, but among them would be found variations that could be traced to the fact that their authors had a definite realization that one line of conduct was really superior to another. It is the perception that one act is inherently superior to another that I have called consciousness of life. The term consciousness is used instead of desire in order to emphasize the real line of division between this motive and the desire for approbation. The important point is whether an individual acts because of a consciousness of the superiority of his act or because of the opinions and criticisms of other individuals. A complete realization of the superiority of a particular line of conduct is always accompanied by the desire to follow it. The term life is used here to conform to the statement of the individual ideal. The lower or physical side of man's development is brought about through natural or blind forces of evolution, without any consciousness of the process on the part of the individual; but the higher, or mental, side is accomplished through the initiative of individuals who realize that certain courses of action will lead to a higher plane of life. Therefore they consciously adapt themselves to those forces which are working towards higher levels; and they receive that satisfaction

or happiness which comes from the adjustment of inner to outer forces.

The Mental Desires Contrasted. The consciousness of life manifests itself in aesthetic, intellectual, moral, and religious directions; or in an appreciation of beauty, truth, and right conduct. These activities however are not followed exclusively because of consciousness of life, the desire for approbation frequently entering in as the dominating motive; and when the two desires are responsible for the same activities they may be conveniently contrasted. Taking the first example from aesthetics, many an interest expressed in a particular painter, musician, or author is due not to any real appreciation of the character of the art expressed, but to the fact that the artist has a vogue for the time being. In the same way intellectual interests may be followed because they are deemed the proper pursuits in a particular class in society. Young people only too frequently attend colleges and universities perfunctorily, simply because they would be criticised if they did not; or they take a college course because they think it may mean higher earning power for them, that is, because of economic rather than intellectual interests. Comparatively few ever arrive at an appreciation of the value of an intellectual life for its own sake. The distinction between these two kinds of motives is even more clearly exemplified in moral issues. How many persons are moral because they realize that morality will give them the highest well-being and therefore happiness? In the great majority of cases even of moral conduct individuals usually follow prevailing standards merely to avoid criticism from their social group. The group itself may not always adopt the highest standards, yet few individuals, either from reasoning or from experience, arrive at any independent conclusions as to the actual value of those standards. The opinions of the group suffice. The fact that individuals, temporarily visiting distant places, do what they would not do at home; or that they act, when they think they may conceal their conduct, as they never would if their conduct were certain to be known, shows that frequently morality as such has no important effect upon individual character, but is merely an external method of adaptation to a

group. It is just because conduct is to such a large degree the result of the desire for approbation that so frequently we fail to distinguish between true moral conduct, which affects character and social welfare, and the mere observance of manners and ceremonies, which make more agreeable the social relations. Morality is confused with good breeding and comes to be of no more importance.

In making the distinction between the desire for approbation and the consciousness of life, the value of the former should not be underestimated. It is much better to follow artistic and intellectual pursuits from a desire for approbation than not to follow them at all. For even if one starts with an emulative motive, he may finally arrive at true appreciation. The desire for approbation is primarily the basis of social life, but it is also a possible point of departure for the development of a true consciousness of life. The highest standards both of conduct and of mental life arise only from the example of those who have true appreciation of their value; and while followers may imitate leaders, either from a desire for approbation or from a consciousness of life, the desire for approbation is the inferior motive for action.

The real difference between the two psychological desires is not to be found in the objective acts of an individual but in his consciousness. The important point is not that the individual be engaged in artistic or intellectual pursuits instead of in economic or social activities, because the desire for approbation may be the directing force in all these activities alike, and when it is there is no fundamental social difference between them. The difference is merely one of detail with regard to the direction of one's activities. The important distinction is that some have a vision and act as prophets, directing society to higher levels of conduct, while the majority are subject to the suggestions of the crowd, taking, it may be, a desirable course or one undesirable, but not perceiving whence they go.

Attributes of the Consciousness of Life. The consciousness of life differs from other desires in several important respects. In the first place it is not developed actively in every individual. The physical desires are possessed always by human beings in

common with the lower animals. They are inherited. And the desire for approbation, if not inherited, is at least normally awakened at a very early age. These three desires are then so established in the race that all normal persons have them. The fourth desire, consciousness of life, may, on the other hand, be said to be only in the process of formation. It emerges occasionally with a particular kind of education and development. It is to be hoped that as civilization advances it will appear more frequently and will develop still higher types.

Secondly, the action of consciousness of life is more rational and directive than are the other desires. The physical desires propel man onward through fear and pain; and in the course of their satisfaction progress is made, though such progress is unconscious on the part of the individual. The desire for approbation is a socializing force, tending to unify a group of any sort, whatever its motive or character. But the consciousness of life alone establishes an intelligent ideal, and it does this with the avowed intention of improving society. It is the desire therefore that is of utmost importance in social evolution, because it provides a new method of control. It permits man to determine his course of progress, and therefore to hasten it, instead of submitting to the control of the blind forces of nature.

Another difference between consciousness of life and the other desires lies in the nature of the sensations connected with them. All desires are accompanied by feelings of pleasure and of pain; but with the physical desires the predominant feeling is pain. Much of the sensation of well-being which accompanies the satisfaction of physical desires is due to the subsidence of pain rather than to any positive feeling of pleasure, at least the avoidance of pain is the strongest propelling force in their satisfaction. With the desire for approbation the aspect of pleasure begins to be of more importance. People act from a desire for pleasure, as well as from the intent to avoid pain; yet even in our social relations it is probable that the pain side of the desire is still more acute than is the pleasure side. With the consciousness of life for the first time the allurements of the pleasure side becomes the prevailing motive. It is true that, with many, some feeling of pain does arise if the higher intellectual needs

are not satisfied; but in this case the sensation is so vague and indefinite, having become attenuated to a mere mood of dissatisfaction or melancholy, that it does not lead one unerringly to the cause of the trouble, and hence does not ensure the satisfaction of the desire. Usually complete satisfaction of the intellectual desires is stimulated by the pleasure anticipated in their satisfaction. After the cultural desires are once developed the feeling of pain comes to be much more definite and disturbing. For example, if one has developed a sense of the beautiful, a lack of harmony in form or color is irritating; in fact most people are sufficiently sensitive to be disturbed by discordant sounds. Wrong conduct, however, produces immediate pain only among those who have developed a high degree of moral discrimination. Continued indulgence in immoral acts may ultimately lead to such painful results that the cause is recognized and the acts discontinued, but not always. Frequently the results are so vague or indirect that the causal relationship is not felt. In the intellectual field fallacious reasoning and misstatements of fact are repugnant only to those whose minds have been trained to an appreciation of truth and accuracy of statement.

The absence of the pain element in the consciousness of life is one explanation of its limited development. In general men are spurred to action by a feeling of pain. The possibility of enjoying pleasure which they have never before experienced is an insufficient stimulus to overcome inertia. Cultural activities therefore are not pursued by the mass of society with greater energy because no definite sensation of pain spurs them on to satisfy such needs.

The Normal Development of Desires. All desires are in a sense dependent upon one another. All are needed for man's higher development. Normally the physical desires are first satisfied; and the activities arising from these desires furnish a basis for the higher intellectual pursuits; while the desire for approbation stimulates a development of the personality essential to their cultivation. Thus the normal growth of the desires of individuals within a society ensures the proper development of social activities in that society. In primitive societies economic activities will predominate; but, as economic develop-

ment proceeds, cultural interests will arise and will become relatively of greater and greater importance. A society developing in this normal way will pass from what Professor Patten has called a pain economy to a pleasure economy. In the early period of such a society pains and privations will be uppermost; but, as nature is mastered and the intellectual or cultural needs begin to assert themselves, the pain side of life will diminish and the pleasure side will increase in importance.

Not only may a society pass from the dominance of a lower desire to the control of a higher desire; but the character of each desire may change and its satisfaction become more refined. The desire for self-preservation may go beyond the stage of mere satisfaction of the appetites and may develop into the desire for perfect physical health and activity. The desire for race continuance, instead of remaining merely sex impulse, may assume a higher form in paternal and marital affection. In the same way the desire for approbation may show many gradations from the desire for flattery to the pleasure derived from the esteem of one's fellows because of real merit. From the standpoint of desire then progress may result from the development and refinement of each desire, as well as from the increase of cultural activity over physical.

Other Classifications of Desires. A few other representative classifications of desires may now be presented for comparison. Many years ago Ward made the following classification:

- I. Physical
 - a.* Individual preservation.
 - b.* Race continuance.
- II. Spiritual
 - a.* Aesthetic.
 - b.* Moral.
 - c.* Intellectual.

The physical desires in this outline are those which I have adopted in my own classification. They might be criticised on the ground that they are too inclusive and do not specify all the instincts; but for the present purpose more detail seems unnecessary. The chief defect in the above grouping lies in the

fact that Ward has omitted the social desire which is indispensable to a complete explanation of life.

Professor Small reduces all desires to the following: — health, wealth, society, beauty, intelligence, and rightness. This classification supplies the social desire, which Ward omitted, but it leaves out the sex desire. Professor Small, to be sure, attempts to include the sex desire in health, but such a combination is a mistake. The two desires are of course related; but they exist in the individual as separate instincts and give rise to entirely distinct social activities. On the other hand, wealth should be omitted in a classification of primary desires. Desire for wealth is composite in character. It is a means for the satisfaction of all other desires, though it may be included for the most part under health and society. This classification would be greatly improved if love were substituted for wealth.

Several more elaborate classifications of the desires have been formulated. A good representative of this type is that of Professor Ross, which follows:

Natural Desires.

- a.* Appetitive. Hunger, thirst, and sex-appetite.
- b.* Hedonic. Fear, aversion to pain, love of warmth, ease, and sensuous pleasure.
- c.* Egotic. These are the demands of the *self* rather than of the *organism*. They include shame, vanity, pride, envy, love of liberty, of power, and of glory. The type of this class is ambition.
- d.* Affective. Desires that terminate upon others; sympathy, sociability, love, hate, spite, jealousy, anger, revenge.
- e.* Recreative. Play impulses, love of expression.

Cultural Desires.

- f.* Religious. Yearning for those states of swimming or unconditioned consciousness represented by religious ecstasy.
- g.* Ethical. Love of fair play, sense of justice.
- h.* Aesthetic. Desire for the pleasures of perception, i.e., for enjoyment of the beautiful.
- i.* Intellectual. Curiosity, love of knowing, of learning, and of imparting.

In this classification the first heading, in combining the hunger, thirst, and sex appetite, seems to be too inclusive in view of the more minute differentiations made in the later headings. Such a combination is not of course illogical; the question is merely that of the advisability of reducing such distinct and important appetites to a single heading. The second division, the hedonic desire, seems hardly deserving of a place among the basic desires. It has already been pointed out that pleasure and pain accompany all desire; and the mere striving for pleasure and the avoidance of pain, do not constitute a separate desire. Sensation seems here to be confused with a particular instinct. On the other hand, the activities stimulated by the feeling excited have to do with self-preservation, hence the hedonic desire could be properly included under the appetitive.

Similarly, the egotic and the affective desires could be combined if reduced to their lowest terms. In the last analysis these desires are not distinct but are different phases of the same thing. Psychologists no longer make a sharp distinction between egoism and altruism, but regard them merely as two phases of individual growth. And for this reason sociologists do not need to separate egotic and affective desires. The very explanation of these desires shows their close relationship. What would vanity, pride, and envy be apart from one's fellows? How can we separate love, hate, jealousy, and anger from feelings of self? Both these phases must be combined to give the true social desire.

The inclusion of the recreative desire under a separate heading is largely a matter of preference, to be determined by the purpose of the classification. Psychologists generally recognize a play instinct, and hence there is good authority for a separate classification; but modern forms of recreation involve several distinct elements which should be kept in mind. Frequently the element of rivalry is the predominating feature; but this phase may be included properly under the social desire and need not be classified by itself. Another important phase of play is that it is recreative in the proper sense of the term,—that is, it is recuperative. Indeed this is the most significant side of the recreative desire, yet it does not call for a separate classification any more than does rest or sleep. Methods of recuperation are

assumed along with other physical processes. Omitting the manifestations of the play instinct in social and recuperative lines, the kernel of play still remains as the pleasurable use of surplus energy. This is the real basis of the recreative desire, which makes possible its recognition as a separate instinct. I have omitted it from my classification because it leads to social activities and institutions of minor rather than of primary importance. It should be given a place only in a much more elaborate exposition of the desires and instincts. My own purpose in classifying desires is merely to ascertain individual motives for social activities, while Professor Ross "prefers a classification based more immediately upon the nature of the desires and neglecting the functions to which they prompt."

With the analysis of the desires the general outline of social evolution is completed. The remaining parts of the book will treat of the numerous social activities which arise under the stimulation of the desires.

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PART II
ECONOMIC AND POLITICAL FACTORS

CHAPTER VII

THE DESIRE FOR SELF-PRESERVATION

The Nature of the Desire. The desire for self-preservation in its cruder form means merely the desire to preserve life; but in its more refined manifestations it includes the desire to attain perfect health and physical vigor.

The cruder form of the desire is maintained in the individual by the process of natural selection, for it is evident that individuals who did not possess a desire for self-preservation would be eliminated early in life, and those who possessed the desire in only a small degree would be subject to a higher death rate owing to lack of proper care. The finer manifestations of the desire, however, are not necessarily developed by selection. Feelings of pleasure and pain, such as the sensations of hunger and cold, which accompany desire and act as signals of safety or of danger, are not keen enough of themselves to ensure the highest physical well-being. Perfect health is without doubt accompanied by a keen feeling of pleasure, but neglect of health laws is not followed immediately by sufficient pain to stimulate the individual to improve his mode of life. The highest manifestation of the desire for self-preservation must wait therefore for the progress of knowledge and particularly for the laws of hygiene; and the application of this knowledge will depend upon the development of reason and the growth of personality rather than upon feeling alone.

The Strength of the Desire. The strength of the desire for self-preservation varies greatly with different peoples and with different individuals. It seems to be much weaker among primitive peoples than among advanced peoples. Primitive peoples show a smaller mental resistance to death and their vital processes are controlled more directly by the emotions. Advanced peoples have developed through the process of selection a strong tenacity of life which shows itself in ability to

recover from sickness and from surgical operations. As Brinton observes, — “the American Indian, when he falls ill, gives up and dies, while Europeans, though increasingly requiring medical attention, are growing in longevity.”¹ A strong desire for self-preservation tends therefore to lower the death rate, but the death rate is affected by so many influences that it could not be used by itself as an accurate index of the strength of this desire.

With human beings the desire for self-preservation is stronger than is the desire for reproduction, but with some of the lower animals the latter desire seems to be the stronger. As compared with the psychological desires, the desire for self-preservation among highly developed individuals becomes wholly subordinate, although with the less progressive it still remains the dominating motive. Perilous conditions, such as fire or shipwreck, illustrate strikingly the extremes in type; on the one hand men struggle like beasts to preserve their lives, while on the other hand they exhibit utter self-sacrifice for the safety of others. Again, where honor is at stake, individuals surrender their lives readily for the welfare of others. And history shows innumerable examples of the willing sacrifice of life when a principle, such as a religious ideal, was involved. The conclusion may be drawn then that as men progress the desire for self-preservation becomes stronger absolutely, but weaker relatively, to the psychological desires.

Considering the desire for self-preservation from the absolute rather than from the relative point of view, it appears to be none too strong for the best interests of society. Men continually risk their lives from sheer carelessness or from a wish to obtain distinction, when the possible advantage to be gained is slight; or they neglect health and lower their general efficiency for small compensations.

The desire to preserve our own lives finally extends its scope to include the lives of others; in other words it raises our estimate of the value of human life in general. This estimate has grown with increased sympathy, but is still regrettably low. Provided our own lives are not endangered, it is easy to be careless of the lives of others under our control, either through

¹ The Basis of Social Relations, p. 142.

negligence of protective appliances or because of a craving for large profits. Examples are numerous of avoidable deaths from railroad accidents, from unprotected machinery in factories, or from the loss of health due to insanitary conditions of employment, or the adulteration of food products. They show that life is not yet held in greater esteem than property or profits.

Although the desire for self-preservation acts most directly and most strongly on the individual, it may extend its influence to the social group. The state, for instance, may become the larger expression of the self; and then the amount of care bestowed upon this social group will reflect the sentiments of individuals composing it. Strong desire for self-preservation in individuals will emerge in the social group as efficiency of organization and energy in defence, when the safety of the group is threatened.

Normal and Abnormal Manifestations. The desire for self-preservation has both normal and abnormal manifestations. Normally it furnishes the basis for approved individual and social activities and for social institutions. In its abnormal manifestations the desire gives rise to problems both individual and social. In a treatise on theoretical sociology any extended discussion of the abnormal has no place. It may be of advantage however to indicate here and there the point of departure, so to speak, of social abnormalities; that is, to point out the conditions under which they arise and their relationship to normal social life.

Abnormal manifestations are of two kinds. The first reveals itself in neglect of the needs of the body relating to food, sleep, or exercise. This form results from a deficiency of the desire, or perhaps merely from a continued concentration of the attention on other matters. The limit of this form of abnormal expression is reached when the desire becomes a negative quantity, giving rise to the problem of suicide. The second form of abnormal manifestation is excessive stimulation or perversion of appetite, leading to the problem of physical excesses, such as intemperance in the use of food or drink, or even over-indulgence in exercise or in the use of artificial heat. While intemperance in the use of alcoholic liquors is the most striking

evil arising from the perversion of the desire for self-preservation, the intemperate use of food often has hazardous results, though these are evidently individual rather than social phenomena.

Activities Resulting from the Desire. In its normal action the desire for self-preservation gives rise to two important classes of social activities, economic and political, using those terms broadly. Economic activities will be considered first, and under this heading social conditions arising out of the relationship of man and the environment will be discussed.

Man and the environment are the original factors in social evolution, and the beginnings of progress are to be found in the purely physical relationship between them. This relationship is the basis of the biological process of natural selection which affects man in common with all other forms of life. In the biological use of the term, natural selection means the elimination of individuals who cannot adapt themselves to the environment and a survival of those who are able to adapt themselves. In this connection the term environment is used to include both physical nature and vegetable and animal life. For the present purpose it will be convenient to subdivide the environment into three parts, each of which gives rise to a different form of selection: first, inorganic environment, adaptation to which gives rise to inorganic selection; second, lower organic life both animal and vegetable, struggle with which gives rise to heterogeneric selection; and third, the social environment, adaptation to which produces autogeneric selection.

In the process of the adaptation of man to all three of these environments, two aspects may be distinguished: first, a struggle phase, which is waged on terms of comparative equality; and, second, a condition of utilization in which man adapts the environment to suit his needs. The relationship between man and the environments may therefore be tabulated as follows:

1. Inorganic nature	{ Struggle Utilization	Inorganic selection
2. Lower organic life	{ Struggle Utilization	{ Direct Indirect Heterogeneric selection
3. The social environment	{ Struggle Utilization	{ Group Individual Autogeneric selection

CHAPTER VIII

INFLUENCES OF THE INORGANIC ENVIRONMENT

Inorganic Selection. Physical nature influences man as an individual, and it also molds and directs his social life. These two influences, individual and social, may be considered separately, though in their ultimate effects they are not entirely unrelated. The environment affects the individual with varying degrees of intensity, the most extreme influence being the absolute elimination of the weak and defective through the process of inorganic selection. The chief value of this form of selection is its tendency to keep up the vigor of the species. When selection acts freely, only those individuals who possess the qualities needed in their environment survive, those who lack these qualities being eliminated. Inasmuch as the inferiors are eliminated at an early age, the second generation is descended from superior individuals and inherits their characteristics. In this way inorganic selection helps to preserve racial standards.

Defects in Inorganic Selection. *Elimination of the fit.* In the human species the selective process is complicated by the fact that the influence of the physical environment becomes merged with that of the social environment which varies markedly in quality. Human beings therefore are subject to such unequal influences from the social environment that inorganic selection is interfered with and many of the superior as well as the inferior perish. This is the first defect in the selective process; and, although it is perhaps traceable more to the social than to the physical environment, it may properly be considered here because the influence of the two environments cannot be distinguished.

If the environment does not change, the selective influence is strongest with infants and declines with age. The chief problem therefore is to lower infant mortality so as to preserve the lives of normal children who now perish through neglect or because

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of adverse living conditions, without counteracting the effects of selection altogether. From the point of view of adaptability infants may be divided into three classes: those who are so weak or defective that they cannot be kept alive; the subnormal who need exceptional care, some of whom survive a few years only, while others survive to maturity but never develop normal faculties; and the normal. If these classes could be completely distinguished from the start our efforts might advantageously center on the normal; but, inasmuch as they are not always distinguishable, our efforts actually prove to be rather indiscriminating and often misdirected, so that some of the second class are kept alive at the expense of many in the third class who are left to perish.

The causes of a high rate of elimination among human beings are partly the same as those affecting the lower animals and partly different. The severity of the struggle for existence is an important factor with both. The struggle for existence, being a relationship between the population and the environment, is affected either by the character of the environment or by the density of the population. Therefore the struggle may be severe both in a poor environment with a sparse population and also in a rich environment with a dense population. Another cause of elimination among human beings is ignorance, or vicious conduct. This is not a cause of selection among lower animals, because they act from instinct instead of reason, so that variations in external conditions rather than differences in internal response determine their survival.

Causes of infant mortality may be helpfully classified in somewhat greater detail under the three following headings. First, weaknesses of parents, including both traits which are inherited in the technical sense of the term, and those which are acquired, like bad habits, disease, and exhaustion from overwork or poor nutrition, any of which may enfeeble the child in other ways than through direct inheritance. Second, defects in the infant, by which is meant traits acquired through individual variation or through accident, which the parents did not possess. Third, deleterious influences of the environment, which would include a very wide range of conditions, such as neglect or lack

of proper care at birth, improper feeding, insanitary housing conditions, etc.

A detailed discussion of the best methods of reducing infant mortality would be out of place here. The purpose is merely to point out the principle that some measures will act in conformity with the force of selection by giving normal infants a fair chance, and other measures will act in opposition to the force of selection by helping to keep alive the permanently defective. The above classification gives an indication, at least, of causes of selection which could be removed without detriment to society. Environmental factors could be improved, at least to the extent of providing average healthy conditions for everyone, with nothing but favorable results on selection. A less positive statement must suffice concerning the other causes of death. In general, inherited defects are the proper subjects for selection; but it is not true that inherited disabilities can never be cured, and such cures where possible may not be to the detriment of the race, though there is always danger in the continued transmittance of serious disabilities. Defects in parents due to ignorance or vice, and defects in the individual due to injuries, may advantageously be avoided wherever possible; but when once incurred they are likely to be as detrimental to the race as inherited defects; and their elimination through selection then becomes desirable.

The survival of the unfit. The survival of the unfit through artificial care is the second problem of selection in human societies. The progress of knowledge, together with the growth of humanitarian instincts, furnishes the means and the inclination to prolong the lives of the weak and the defective; and this has been done with comparatively little regard for the interests of the race. Persons with inherited physical defects are kept alive when they cannot be made normal; and they may pass on their defects to the next generation. And mental defectives, such as the insane, feeble-minded, and epileptics, are cared for, and perhaps made partially self-supporting, without being entirely cured. Explained in biological terms, a new and easy environment is created, which permits individuals to survive without those qualities which would be absolutely essential

in a normal environment. In this way the defectives are gradually increasing, because they are being produced through direct propagation as well as through accident or other individual causes, and therefore the average vigor and efficiency of the race is being lowered, a condition which in turn may affect its chances of survival.

Although science and altruism are in a way responsible for this interference with the selective process, the case is one of those in which it is not possible to correct the results by a removal of the causes, for that would imply a return to a condition of barbarism. In so far as science is responsible for the undesirable situation, it is the partial or limited range of our knowledge which is at fault; and the solution lies in pushing on to a more complete understanding by acquisitions in other fields, instead of the abandonment of the knowledge already gained. We could, it is true, refrain from employing our medical knowledge for this particular purpose; but altruistic sentiments require the saving of life wherever possible; and we cannot afford to follow a course of action which would blunt our moral sensibilities. The sentiment of sympathy is a plant of tender growth. A long period of time has been spent in its cultivation; and even now the action of individuals in times of passion, such as the outbreak of war, indicates that the humanitarian sentiment is not yet deeply rooted. On the other hand, it is true that our sentiments and emotions are frequently uncontrolled and misdirected; and, although they are priceless acquisitions, they would be much more serviceable if tempered by reason and directed to the broader interests of society rather than to the immediate advantage of individuals. The solution of the problem does call for a more rational ordering of our sympathies, so that the larger good will not be lost sight of in striving for the lesser; but it does not necessitate the suppression or even the curtailment of the humanitarian instincts.

The best solution at present is to care for the weak and defective during their normal lives but to prohibit their reproduction. This course would satisfy the needs of society and, at the same time, would not menace the growth of the ethical instincts. The cost of supporting a large army of dependents,

though considerable, would be the smallest part of the problem. Society can well afford to bear that burden. This policy if carefully enforced would of itself tend gradually to lessen the number of hereditary dependents; and of course every effort should be made to lessen the numbers from other causes.

Although this method of dealing with dependents may seem to be the simple and natural one, it nevertheless indicates a significant change in the process of human evolution. Man through his superior intelligence is freeing himself from the painful processes of selection which hold sway in the animal kingdom as a whole. And he must therefore, if he is to retain his high position, substitute some other process for the one which he is outgrowing. The blind wasteful methods of nature must be replaced by intelligent organization and direction of natural and social forces. The solution requires that the invigorating effects of a selective death rate be replaced by an equally invigorating but more humanitarian influence of a selective birth rate.

Other Effects of the Environment on the Individual. In addition to the actual elimination of the unfit, the action of the physical environment has many less extreme physical results. Scientific study of these lesser environmental influences has been meagre and the nature of the results is not always well understood.

Effect on stature. The environment seems to have an appreciable effect upon the size and vigor of individuals. In the case of plants and lower animals it is a well known fact that a favorable environment stimulates growth and an unfavorable environment tends to dwarf the organism. Often, it is true, it seems merely to stimulate early growth; but ordinarily a stimulation or retardation of the early period of growth results in permanent gain or loss to the organism. Applying this principle to the human species Brinton¹ attributes the small stature and low grade of intellectual development of such races of men as the Lapps and Bushmen to unfavorable physical environment. And Boas² found that the second generation of immigrants to

¹ D. G. Brinton, *The Basis of Social Relations*, p. 135.

² F. Boas, *The Mind of Primitive Man*, pp. 54-55.

New York from Central and Northern Europe were taller than their parents, though he found that children of Sicilians were shorter. He cites also the studies of Gould and Baxter during the War of the Rebellion, which showed "that the representatives of European nationalities born in America have statures higher than the representatives of the same nationalities born in Europe."

Inasmuch as stature is supposed to be an inherited trait it may seem illogical to attribute it here to environmental influence, but there is no real inconsistency in admitting the effects of both factors on such a character. The individual may inherit certain possibilities of, or limitations to, growth; but within these limits growth may be retarded or promoted by environmental conditions. All characters, both physical and mental, which, like plants, depend upon external conditions for their growth are actually products both of heredity and environment. It is only when the environment is stable from generation to generation that individual differences are traceable to heredity alone.

Effect on pigmentation. Pigmentation of the skin, while evidently an inherited racial trait, must have been determined originally by environmental influences. The exact cause of the degree of pigmentation is not well understood. Spencer¹ concluded that the black skin of the Negro was the result of heat combined with moisture. But it seems rather to be produced by the direct rays of the sun, for peoples living in South America in hot, moist, but wooded regions are of a much lighter color. With black peoples the skin and lungs are less active and the intestines more active in the elimination of waste. Miss Semple says² that "pigmentation is associated in the negro with dense cuticle, diminished perspiration, small chests and less respiratory power, lower temperature and a more rapid pulse." Coloration itself is a protective device serving to counteract the more powerful rays of the sun. Mr. L. W. Lyde³ notes that the lightest colored races are found in cold moist climates with

¹ H. Spencer, Principles of Sociology, Vol. I, Ch. 3.

² E. C. Semple, Influences of Geographic Environment, p. 38.

³ L. W. Lyde, Climate and Racial Skin Color, Contemp. Review, 99: 231.

cloudy skies. The yellow or copper-colored peoples are found in dry climates but under varying temperatures, the cold weather requiring a skin which will conserve heat. In moister climates the yellow races bleach to white.

Effect on the blood. Heat seems also to have an effect on the blood cells, so that adaptation to a different thermal zone is difficult. Brinton¹ formulates the general law that the more northerly races cannot become completely acclimated to a zone which has a mean temperature of more than 18° F. above their native zone. He admits various exceptions to the rule, especially in cases of peoples who have adapted themselves to climates having rapid changes in temperature. This difficulty in adaptation may be one explanation of the general trend of migrations in easterly and westerly directions instead of north and south. Blood is also affected by altitude which seems to increase both the red and the white corpuscles. Some writers have thought that the increase in red corpuscles was more apparent than real and was due to the concentration of blood from evaporation, or to an unequal distribution of the red corpuscles which gives a large count near the surface of the body. Dr. Crouzon² reported from his experiments that only peripheral blood was so affected. Blood taken from nearer the heart showed no such increase. However from the experiments conducted on the summit of Pike's Peak the conclusion was reached³ that the number of red corpuscles was greatly increased. The amount of hemoglobin in a fully acclimated person was forty per cent greater than at sea level. The volume of air breathed was found to be half as much again. And Professor Henderson reported that the tissues of the lungs developed a peculiar secretory power so that much more oxygen was forced into the blood than was the case at lower levels. The increase of hemoglobin is probably one explanation of the advantage of a high altitude in the treatment of tuberculosis. On the other hand the rare atmosphere of high altitudes makes breathing more difficult. It increases lung capacity but has an unfavorable effect upon the heart.

¹ D. G. Brinton, *The Basis of Social Relations*, p. 194.

² *Scientific American*, s. 78: 334.

³ Y. Henderson, *Yale Review*, n. s. 3: 1914.

Effects on the nervous system. A dry atmosphere and possibly a high altitude seem to have a deleterious effect on the nervous system. Dr. Moleen¹ maintains that nervous diseases are no more common in high altitudes than in low. But Dexter² shows that low humidity, especially if accompanied by wind, produces increased nervous tension as shown by mild insomnia or increased irritability. The cause, however, is not thought to be the dryness itself but the electrical condition of the atmosphere. During high winds in Denver suicides, murders, and misdemeanors in schools, increased to six or seven times the normal.

Dark cloudy regions have a depressing effect while the sunshine enlivens. Nossiloff noted the effect of the polar night on the native population. It caused an apathy of body and mind and a general feeling of drowsiness, which was especially manifest in children, who seemed to pine away. A plentiful supply of sunlight produces a buoyant, joyous temperament. An excessive amount of sunlight, however, is thought to be deleterious in that it overstimulates the cells, causing them to break down prematurely.

Effect on energy. Finally, climate acts upon individuals to affect the intensity and continuity of labor. Influences of this kind have been observed from ancient times, and broad generalizations have been made by such writers as Montesquieu and Buckle.

The general effects of the different temperature zones are now pretty well understood. They act upon the human organism both directly, to stimulate or to enervate it; and indirectly, by producing an environment demanding particular characteristics, both physical and mental, for human survival, — qualities which, if not attained by direct climatic action, are evolved slowly through the process of selection.

The temperate zone, with its diurnal and seasonal changes of temperature and rapid succession of storm areas, is stimulating to the inhabitants. Their vital energies must be roused to undergo the swift adaptations necessary; a torpid body could not

¹ See Literary Digest, Sept. 16, 1916.

² Weather Influences, p. 89.

endure the sudden changes. These climatic conditions develop energy and the desire for activity both physical and mental, — qualities which the condition of living in the temperate zone render imperative. The long winters, and the considerable precipitation, necessitate substantial dwellings, abundance of clothing, and storage of food; and hard and continuous labor is needed throughout the milder summer seasons to make provision for winter requirements. The climate is intolerant of indolence, puts a premium on energy, enterprise, and self-control, and stimulates foresight and thrift. These characteristics have, indeed, a survival value; and those who lack them tend to be eliminated, or at least reduced to poverty. They are, too, the qualities which have led to the production of capital, and have been the basis for the great distinction between the "haves" and the "have nots" which permits class culture and promotes class conflicts.

In moist tropical regions the climate is enervating and debilitating. Nature relaxes and climatic changes are so slight that the human organism is not called upon to readapt itself continually to new conditions as in the temperate zone. In compensation nature requires little labor for the continuance of life. Not only are the physical requirements for shelter, clothing, and food less exacting; but nature provides vegetable life profusely and throughout the year, so that the inhabitants have no need to develop habits of saving. Thrift has here no survival value and the inhabitants may be indolent and careless with impunity.

The climate of hot dry zones is much less enervating than that of the moister regions. Temperature changes are greater and more sudden; and nature stimulates man to exertion through the scarcity of one necessary element, moisture. Desert regions therefore furnish a sort of transition stage between tropical and temperate climates. They present fewer obstacles to be overcome than the moist temperate zones; but that one deficiency of moisture stimulates man either to wander about in search of water or to provide it through irrigation. If the deficiency can be overcome, other climatic conditions are so favorable that a high degree of culture may be attained. McDougall states the

effects of these climatic zones as follows: — “High temperature combined with moisture certainly tends to depress the vital activity of Europeans and to render them indolent, indisposed to exertion of any kind. On the other hand high temperature combined with dryness of atmosphere seems to have the effect of rendering man but little disposed to continuous activity, and yet capable of great effort; it tends to produce a violent spasmodic activity. A cold climate seems to dispose towards sustained activity, and, when combined with much moisture, to a certain slowness.”¹ For examples, he mentions the Malays, as showing the effects of hot moist climates; the Arabs and Sheiks as illustrating the effect of dry heat; and the English and the Dutch for the qualities produced by a moist cool climate.

While the climate of the frigid zone is not enervating, the long nights are depressing. The natives are reported to be industrious, good natured, and hopeful. The inhibiting factor here comes from the long continuance of the cold and from the paucity of nature. The summer season is too short to make adequate provision for winter. Land fails to furnish sufficient food, and the sea becomes the chief source of supply. While the hardships of the polar regions develop courage and endurance, the paucity of nature makes the production of a surplus impossible. And so the materials necessary for a high stage of culture are lacking.

Both in the frigid and in the tropical zones mental life is inactive. Natives of the temperate zones who try to adapt themselves to either of these zones undergo mental deterioration. In the temperate zone only, it would seem, is the human race stimulated to its highest powers and achievements. Brinton goes so far as to say that “races now native to the Polar and Tropical areas are distinctly pathological.”²

In addition to these general effects of the different thermal zones, minor climatic changes occurring within a zone have significant results on physical and mental life. These secondary influences are not thoroughly understood, but a promising beginning in their study has been made by Dexter and by Huntington.

¹ William McDougall, *The Group Mind*, p. 294.

² D. G. Brinton, *The Basis of Social Relations*, p. 196.

Dexter has tried to ascertain the effects of weather on the individual by studying his reactions to it in such physical and emotional states as sickness, drunkenness, deportment in prisons and schools, clerical errors in banks, crime, and suicide. His theory is that weather conditions stimulate or depress vital energy, and cause an increase or decrease in the number of misdemeanors. Thus a dry atmosphere produces an excess of energy, making school children and prisoners less tractable, and increasing the number of assaults and arrests for insanity. On the other hand, an excess of humidity produces deficiency in energy, as shown by increase in sickness, drunkenness, and clerical errors in banks. Precipitation seems to increase all these manifestations except errors in banks, deaths, and sickness. Winds, according to the author, increase those phenomena due to an excess of vitality, while during calms there is a marked deficiency in misdemeanors, assaults, drunkenness, and suicide. Some of Dexter's results appear either inconsistent or not properly interpreted, but the significance attributed to the more marked variations is doubtless correct.

Professor Huntington has studied climatic influences on the intensity and continuity of labor and on the health and vitality of peoples; and he concludes that the most important, from the point of view of energy, are seasonal variations in temperature, changes in temperature from day to day, and humidity. He found that the maximum amount of physical labor was performed at an average temperature of 60° or 65° F. and mental activity was greatest when the outside temperature averaged about 38° . Consequently climates which include these temperatures in their seasonal changes are preferable in so far as this one factor is concerned. A monotonous climate, however, is much less stimulating than a variable one; hence changes in temperature between day and night, and from day to day, and variations in humidity, affected by storm centers, are also desirable factors in an ideal climate.

The degree of humidity most favorable seems to depend upon the temperature. In the spring and fall when the temperature averages about 50° , the most favorable condition of humidity is about 75%. When the temperature rises to 60° or 65° the

most work is accomplished with a humidity of about 60%. In his later work, "World Power and Evolution," Huntington concludes that the best combination of heat and moisture is a temperature of about 64° accompanied by 80% humidity. The depressing effect of excessive amounts of moisture is well recognized; but the undesirable result from excessive dryness within doors, as shown by these studies, is much more marked.

The effects of the changes of temperature from day to day Professor Huntington summarizes as follows: — "Taking the year as a whole, uniformity of temperature causes low energy; a slight rise is beneficial, but a further rise is of no particular value; the beginning of a fall of temperature is harmful, but when the fall becomes a little larger it is much more stimulating than a rise; when it becomes extreme however its beneficial qualities begin to decline."¹ With regard to the amount of change which is most stimulating he concludes that the best results would probably be obtained by a rise of from 2° to 3° a day for a few days, and then a drop of from 4° to 8° a day. Some stimulus, though not much, is obtained from changes still greater than these. Men on the whole respond better than women to a considerable drop in temperature; that is, women seem to be more sensitive than men to cold.

Cloudiness seems to be of little importance in determining intensity of work; but, in so far as its results could be estimated by themselves, it was found that "people are least efficient on the clear days; moderately efficient on the cloudy days, and on the first cloudy day especially; and most efficient at the end of a storm."² Considering all the factors which go to make up an ideal climate, Professor Huntington concludes that those countries which possess a climate most favorable to the expenditure of energy are the British Isles and Central Europe, the central and eastern sections of the United States, and lower Canada. He also gives strong arguments in support of the thesis that climatic changes as represented by variations in the rainfall have been the chief underlying causes of the rise and decline of civilizations.

¹ E. Huntington, *Civilization and Climate*, p. 117.

² E. Huntington, *Civilization and Climate*, p. 123.

Climate is a very complicated factor to analyze, and much further study will be necessary before we have any accurate estimate of its influence. Nevertheless the evidence collected is sufficient to show that it has an important bearing on social progress since evidently it affects energy, which is one of the prime factors in the production of wealth and the accumulation of a surplus. But, furthermore, excessive dryness influences food production directly, and periods of scarcity may produce serious social and political changes. Finally climatic conditions affect health in many ways; for example, unusual moisture may favor the introduction of a new disease, such as malaria. Therefore, if unfavorable climatic conditions increase morbidity, and the vitality of a people declines, progress will be checked, demoralization begin, and a nation at one time supreme may fall before the attacks of a healthier and more energetic race.

Effects of the Environment on Occupation. Turning now from the influences of the environment on the individual to its effects upon the life of the group, we encounter a complicated array of forces which, directly or indirectly, influence man's whole economic and social life. These environmental influences are indeed so numerous that it will be convenient to restrict the present discussion chiefly to those which concern economic life. Those which modify man's social and intellectual life will be considered later in connection with the discussions of such social institutions as the state, the family, etc.

The most obvious effect of the environment on the economic life is that it is the chief factor in determining occupations. Strictly speaking of course the force of the environment cannot be separated from man's intellectual development, because in different stages of that development he would utilize the same environment in different ways. Still the environment does of itself set definite limits to his economic activities, and the nature of its restricting forces may be analyzed by themselves. The environmental determination of occupations may be conveniently approached from the point of view of the several stages of economic development.

Hunting stage. At first primitive tribes lived on the vegetable and animal products which nature freely afforded. This

hunting stage of development was, to be sure, made necessary because of man's ignorance of any artificial means of producing food; but even then man had to seek the food which nature provided, and its accessibility determined the distribution and growth of primitive peoples. Furthermore tribes evidently continue this particular mode of life as long as it suffices for their needs. Usually they adopt new methods only when forced to do so to meet new conditions; therefore it is the character of the environment which serves to prolong or shorten this period of the hunting stage. Broad plains, affording an abundance of animal life and permitting easy movement from spot to spot, are most favorable to its continuance, as was illustrated by the North American Indians on the central plains. In areas enclosed by mountains where movement is restricted, and where game may quickly become exterminated, savage tribes are earlier forced to resort to the artificial production of food.

Pastoral life. After the hunting stage the environment again determines whether man shall cultivate animal or vegetable food; that is, enter the pastoral, or agricultural, stage of existence. The presence of animals that are easy of domestication and the availability of broad plains to ensure pasturage make possible a pastoral life. The absence of either of these conditions necessitates the direct transition from the hunting to the agricultural stage, provided climatic conditions are favorable. The more natural sequence is without doubt from the hunting to the pastoral stage, as it calls for similar personal qualities and modes of life; and in those cases where pastoral life is not possible the transition from hunting to agriculture is much longer delayed. The native North Americans had no cattle, and for some reason they did not domesticate the bison, though it is now believed to be a domesticable animal; and at the time of the discovery of America the different tribes were in various stages of transition between hunting and agriculture. On the other hand the Quichuans of South America, who had animals, lacked the plains for their pasturage. So pastoral life in its true sense failed to develop anywhere on the western hemisphere.

Environmental conditions determine not only the presence or absence of a pastoral period in the economic development of

primitive peoples; but they determine also whether there shall be continuance of grazing and of agriculture among more advanced peoples. As agriculture supports the larger population, it has the preference in locations adapted to it; but districts which are not available for agriculture may still be utilized for grazing.

Agriculture. The transition from one stage of economy to another is usually stimulated by the pressure of population and the necessity for supporting an increase in numbers in a given territory. From this point of view the superiority of agriculture is very marked. Miss Semple gives the approximate number of persons who can be supported under the different kinds of economy as follows: ¹

Hunter tribes require from 70 to 200 square miles per capita.

Hunter tribes, employing some primitive agriculture, $\frac{1}{2}$ to 2 square miles per capita.

Pastoral nomads have a density of 2–5 per square mile.

Pastoral nomads, practising some agriculture, 10–15 per square mile.

Agricultural people with primitive methods, 5–15 per square mile.

Agriculture with European methods in colonial lands, 25 per square mile.

Agriculture as practised in Central Europe, 100 per square mile.

Agriculture as practised in Southern Europe, 200 per square mile.

Agriculture with some industry, 250–300 per square mile.

Industrial districts, 500–800 per square mile.

The pursuit of agriculture is determined chiefly by the amount of moisture, character of the soil, and general topography. Moisture is obtained either from neighboring bodies of water through irrigation or from rainfall. Irrigated land is always used for agriculture, and areas depending upon rainfall will be used for agriculture or stock raising, according to the amount of the moisture. If the rainfall is less than 20 inches, agriculture without irrigation is likely to be uncertain, if not

¹ E. C. Semple, *Influences of Geographic Environment*, p. 65.

impossible, though the seasonal distribution of rainfall is of great importance. The moisture-laden atmosphere must pass from a warmer to a cooler temperature, or the moisture will not condense and precipitate. In the tropics the wind is from an easterly direction; and in the temperate zones it is prevailing, though not exclusively, westerly. Hence the land in the tropics with no mountain barriers on the east to cut off the rain, and land in the temperate zones with no barriers on the west, will be well watered. For example, Brazil being in the path of the trade winds gets an abundance of moisture; in fact, too much for the easy control of nature. In the United States mountain barriers on the west cut off the moisture leaving a large dry area on the western plateau. Such an area, unless it can be irrigated, is a natural stock raising district. The eastern part of the United States receives enough moisture from easterly and southerly winds to make it a favorable agricultural section. Australia might be a rich and fertile country, if it were not for the mountain ranges on the east which cut off the moisture leaving a dry area in the interior fit only for grazing. Winds and mountain ranges therefore are the chief factors determining agricultural regions, and hence those parts of the earth's surface which may be populous and progressive.

Agricultural life is superior to pastoral not merely because it supports a larger population, but because it permits a settled mode of life and favors the development of a greater variety of the arts. Pastoral peoples usually seek new pasture ground at least every six months, hence they cannot build permanent houses and develop an architecture; and their property must be confined to goods which may easily be transported from place to place. Pottery cannot be one of their arts, as it is too bulky and too fragile for transportation; their bottles are made of skins. The manufacture of rugs and textiles is their natural form of art, for these commodities are easily transported and moreover the raw materials for their manufacture are furnished by their domesticated animals.

The mental and moral traits of peoples also develop naturally out of their modes of life, as Professor Huntington¹ so clearly

¹ E. Huntington, *The Pulse of Asia*.

demonstrates. Among nomadic peoples hospitality to strangers becomes an indispensable virtue, since individual members of a tribe may have to wander far in search of cattle. At the same time among the tribes themselves there may exist fierce and long-continued hostility, owing to competition for pastures. Such traits of character as laziness, thrift, or honesty may be due to climate, to the abundance or scarcity of water and food, or to proximity to other tribes. The position of women is almost always low among pastoral peoples, for they are of little importance in the chief economic activities. The enforced absence of the men from the tribe for considerable periods of time contributes to instability in the family relation.

Among an agricultural population mental characteristics depend upon the type of agriculture practised. Farmers who rely upon rainfall, especially where it is scant, live isolated lives. They develop independence, extreme individualism, democratic sentiments, and have little sense of responsibility. Farmers who depend upon irrigation dwell in more concentrated areas. They develop more of the coöperative spirit, feel a greater amount of interdependence, and are more progressive intellectually.

Sea-faring life. While the greater part of the world's population has turned to agriculture for support, a few peoples have followed the sea. As sea-faring life is more dangerous and venturesome than life on land, in early times something more than proximity to the sea was necessary to stimulate people to follow that life. The chief conditions essential to it seem to have been a land-locked harbor, well protected from storms, and a narrow coast hemmed in by mountains. The mountains render impossible the agricultural life, hinder any scattering of the people, and at the same time they usually furnish convenient material for the building of ships. The Jews were able to find a sufficient amount of agricultural land in Palestine, so that they never entered the sea-faring life; but the Phoenicians were cut off from the plains by mountains and became the great maritime people of the ancient world.¹ The Norsemen had a plentiful supply of wood for ship-building near the coast, and

¹ E. C. Semple, *Influences of Geographic Environment*, pp. 15, 16 and 257.

they developed skill and confidence in the management of ships in their protected fiords before entering the open sea. The New England colonists developed a maritime life because agricultural lands were not available and timber for ship-building was near at hand. And Shaler¹ points out the fact that maritime life declined when the Mississippi valley was open to agriculture. The energy and enterprise which formerly found an outlet in sea-faring life was diverted to the subjugation of the frontier. Sea-faring peoples are venturesome, hardy, and courageous, and yet they develop a strong sense of sympathy and responsibility for victims of misfortune. As their lives are a struggle with elements which cannot be controlled they develop many superstitions.

Mining. Mining is naturally confined to mountainous districts where the upturned strata of the earth's crust have made the metals easily available. Mining peoples do not necessarily lead a life of individual isolation. They may be gathered into communities; but, as they live in inaccessible districts, they develop and retain peculiar traits of their own. All mountainous peoples are noted for their individualism and their love of freedom; but miners add to these characteristics traits derived from the uncertain character of their occupation. A great element of chance enters into the discovery of metals, and miners are accustomed to conditions in which fortunes are easily made and lost. The uncertainty of reward for labor favors the gambling instinct, which is in no way restrained by social conventions. Mining conditions attract the male rather than the female sex and migration from camp to camp is easy for the unsuccessful. Circumstances favor temporary and unsettled modes of living. In newer mining communities, therefore, is to be found a degree of roughness and lawlessness unknown in other kinds of communities.

Industrial and commercial life. The next stage of economic development after the agricultural includes the industrial and commercial, which are closely related and may be considered together. Manufacturing industries may arise under a variety of conditions, for several kinds of influences favor them. They

¹ N. S. Shaler, *Nature and Man in America*, p. 200.

are ordinarily located near centers of population, because then they have the double advantage of recourse to an adequate labor supply and of proximity to markets. On the other hand it is also true that industries themselves tend to build up centers of population and wealth. The noteworthy characteristic of manufacturing industries is their use of a large amount of labor and capital with a small amount of land; and they are therefore able to support a large concentrated population, provided always that their products are exchangeable, directly or indirectly, with agricultural peoples for food. A minor advantage in location for manufacturing is proximity to raw materials, but in most cases these can be transported to the centers of industry. In early times the great determining factor in the location of industry was water power, — a physical factor; and at the present time proximity to some source of power is still imperative.

The early development of manufacturing in New England was due to its peculiar environmental conditions. New England is a part of the glaciated section of the country which had terminal moraines, and these left it rough and rocky. The result is that the rivers are not navigable but have many falls and rapids which afford abundant water power. Furthermore these same conditions have left the section ill adapted to agriculture; hence in a negative way also the environment favored manufacturing because it did not attract the population permanently to agriculture.

Notable progress in industrial lines at the present time cannot be made without the basic industry which enters into all others, namely, steel. The steel industry requires either the existence, in close proximity, of iron, coal, and limestone, or else the location of iron where it may be transported cheaply to a coal district. These conditions exist in many parts of the world; but thus far the most extensive development of such favored regions has taken place in the United States, England, and Central Europe, making these places the great industrial centers of the world.

Inasmuch as manufacturing industries require concentration of population, division of labor and trade relations, environmental conditions which favor commerce are of great importance

in hastening the development of localities in themselves adapted to industry. Commerce is still greatly assisted by natural highways of communication, though thus far man has altered the environment more through improved means of communication than in any other way. The means of communication afforded by nature are either waterways or valleys, the latter often following present or past river courses. Mountain ranges are barriers even in advanced civilizations and the few favorable passes to be found in mountain ranges are of the greatest assistance to trade.

In the matter of means of communication the United States is well favored, the most formidable barrier being the Rocky Mountain chain, which does form a serious impediment to communication between the Pacific coast and the East. For the rest of the country there is a natural drainage to the south by the Mississippi River and its tributaries, and to the east by the Great Lakes and the Mohawk Valley to New York City. The natural highways therefore are to the south and to the east. Of these we have so far availed ourselves of the eastward route to a much greater extent than we have of the southward, because of the better harbors in the east and its nearness to Europe. The fact that the United States "drains" towards the east has been of the utmost importance in the rapid development of the country. Europe faces the west and therefore no barriers exist to our trade and intercourse with that continent which has the most highly developed civilization. Because of the fact that Europe and North America face each other they are destined to become more and more closely united, rather than separated, by the Atlantic Ocean. Trade with the Orient is physically much more difficult than trade with Europe; however, its early development would have been less advantageous as well.

The physical features which directly stimulate trade with foreign countries are, first, the existence of good harbors; and, secondly, good means of communication from the hinterland to these harbors. In the United States the best harbors are situated on the northeastern coast because the gradual submergence of the land in this area has caused the sea to penetrate the indentations of the land. On the Pacific coast submerged val-

leys have provided good harbors, but these do not drain large land areas as do the harbors in the east. Of course it is desirable that the countries with which one wishes to trade shall also be favored with good harbors connected with advantageous means of internal communication.

Physical features also influence commerce indirectly by determining the particular commodities which may be profitably produced in a region; but a discussion of this subject would involve the details of commercial geography and would be beyond the scope of a discussion of general principles.

Of all the economic factors influencing the growth of cities commerce seems to support the largest population, therefore the greatest cities arise on good harbors or on natural internal points of distribution. Such cities have the greatest accumulation of wealth and tend to become centers of intellectual and social progress.

Environment Determines Distribution of Population. In addition to its direct effect upon occupations, the physical environment influences in other ways the numbers and distribution of peoples. In the first place the size of a population is affected by the amount of land available. To be sure quality of land and climate are of the utmost importance; but, if these factors do not vary, the larger land mass not only provides more area for expansion but usually furnishes also variety of territory and therefore of products. A glance at the map shows that the northern hemisphere is much superior to the southern in land mass. Not only is this absolutely much larger in the northern hemisphere, but the relative amount situated in the temperate zone is still greater. In the southern hemisphere the continents taper off in the temperate zone, while in the northern they broaden out. It has been no mere matter of chance that the centers of civilization and progress have been located in the northern hemisphere.

Effects of Climate upon Early Civilizations. The next factor to affect civilization after the land itself is climate. The influence of climate upon civilization follows logically its influence upon the individual already described. In the tropics groups easily survive, but the progress of culture is exceedingly

slow. The most notable advances in civilization were made in hot, dry regions where the climate is somewhat more stimulating, but where physical needs are still comparatively simple, and where there is no marked change in severity of seasons. Particularly favorable were those spots where nature herself provided moisture through the overflow of rivers, as in the Nile Valley and in the Tigris-Euphrates basin. Civilization in colder and more variable climates came later, after the arts of life were more fully developed, so that the conquest of nature was easier. The importance of the climatic influence in different periods is shown by the striking fact that progress, as measured by centuries, has been marked by a gradual transition of dominant peoples, and with them the zone of great cities, from southern to northern latitudes. The movement has been away from the equator towards a climate which was inferior for the beginnings of civilization, but which came to be superior after man had made considerable technical progress. And the movement was northerly rather than southerly because of the extensive land areas and their generally favorable topography.

The northerly movement finally reaches a natural limit, however, when unfavorable physical factors overbalance favorable, even for civilized man. The decreasing ratio of warm days to cold, the greater intensity of the cold, and the uneven distribution of light and darkness make living conditions more severe and less attractive, so that as civilization tends to advance northward a reverse movement may be detected back to the milder parts of the temperate zone. This reverse movement is connected also with a third factor, healthfulness. In their original states some of the warmer climates were less salubrious than the colder, for many disease germs survive and multiply best in hot places. But a notable phase of recent progress in the arts has been the growth of knowledge as to the causes of disease and the ability to control them. In the future therefore the most delightful climates may become also the most healthful, and this fact will have an important bearing on the distribution of populations.

A statement of the influence of any one factor in progress always seems to over-emphasize the importance of that factor

and make the conditions of progress appear much simpler than they actually are. And the climatic factor is not such a simple and direct influence as it may seem, for it acts not merely in conjunction with other environmental factors but is linked with social relations which cannot be discussed in detail here. Civilization originated in hot climates, to be sure, but it was founded on forced labor obtained through conquest; while the civilization of temperate zones has been built largely on free labor. Of course social relations themselves in the last analysis are affected, if not determined, by climate and other physical factors, all of which are complicated and far reaching. But the advantages of climate are at best relative, depending upon the character of the people and upon the degree of their social advancement. When we speak without qualifications of the advantages or disadvantages of a climate, we are unconsciously viewing it in relation to our own population and our own stage of social development. Yet with all these reservations it cannot be denied that climate is a potent factor in progress and has been through all stages of civilization.

The Advantages of Isolation. Next in importance to climate is the influence of location upon a people with reference to isolation or accessibility. Mountains, swamps, or deserts form barriers to intercourse between peoples, while valleys and navigable rivers make it easy. In the early stages of civilization the presence of barriers seems to have been advantageous for two reasons: first, they protected a people from liability to attack, thus giving them better opportunity to develop their own industrial and social organization; and, secondly, they caused them to concentrate in small areas, thereby stimulating intensity of social life. Both these influences have been apparent in the early history of civilizations. Mention has already been made of the favorable climatic conditions of Egypt, but this country was also well favored with barriers, with the desert on the one side and the mountains on the other, which preserved it from frequency of attack from hostile peoples. England is another example of a nation which has been greatly favored through isolation,—in this case because of its insular position. The early development of England was due largely to the fact of

its comparative freedom from attack, while the late development of Germany is traceable to the confused conditions resulting from the continuous wars which its easy accessibility to its neighbors made inevitable.

The importance of barriers in causing concentration of peoples is well illustrated by the American colonies. The Appalachian Mountains kept the population from spreading and it developed, in a narrow and diversified belt, the beginnings of an industrial and commercial life which clashed with the interests of the mother country. At the same time its increasing intensity of association tended to waken radical views and keep alive hostility to England. North of the Appalachian Mountains, where the population spread out into the St. Lawrence Valley, little hostility developed. And south of the mountains, where on the broad coastal plains again the population was scattered, there existed the greatest degree of conservatism and loyalty to the mother country. Shaler¹ thinks that the American Revolution would have been greatly delayed had it not been for the Appalachian barrier. And it is easy to go even farther and to imagine that economic and political conditions might in that case have been so different that the Revolution would never have taken place.

So important to early civilizations was an area with natural protections, that sometimes peoples who have been driven out of rich territories and been obliged to take refuge in poorer but inaccessible locations, have developed there a higher civilization. Such was the case with the Quichuans who reached a high stage of development in the mountains of Peru, where the environment though difficult ensured freedom from attack. And in ancient and mediaeval times the sites deliberately chosen for the location of cities were usually inaccessible ones, which could be easily defended, in preference to low richer sites more open to attack.

The Advantages of Accessibility. Extreme isolation, which in early times proved advantageous, in later times may become disadvantageous, since continued progress depends so greatly

¹ N. S. Shaler, *Nature and Man in America*, p. 199. See also E. C. Semple, *American History and its Geographic Conditions*, pp. 46 and 47.

upon free intercourse between peoples. The remarkable development of early civilizations in the Mediterranean basin is usually attributed to the excellent means of communication which made possible a stimulating intercourse among dissimilar peoples. Greece was particularly favored in this respect. The numerous indentations of the coast offered many harbors and excellent protection for early navigation. And the islands in the Aegean Sea are so numerous that navigators could make their way to Asia Minor without losing sight of land. However, other enclosed seas affording similar advantages are to be found off the coast of Asia, and in other parts of the world; and the fact that civilization did not develop to the same extent in other enclosed areas would suggest again that favorable climate was more important than intercourse as a stimulus to the appearance of civilization. But, after civilization has once made a good start in a favorable climate, continued progress is particularly dependent upon accessibility.

The most advantageous location of all would seem to be one which offers natural means of defence and at the same time permits a wide amount of intercourse. Such is the situation of England, for its insularity is a safeguard, yet the sea does afford possibility of communication with a much larger number of countries than would ever be possible by land routes. It should be noted that an area which is quite isolated at one period of social development becomes less and less isolated as methods of communication improve. Not only England, but the United States also, is much less isolated from Europe than it formerly was. Our "fortunate isolation," which preserved us from attack, no longer exists; and our interests and welfare are more and more at one with those of other countries. Nevertheless our isolation in the past has wonderfully favored our development. If we had been obliged to maintain a militaristic state we could not possibly have developed economically as we did.

Russia is an example of a country which has been retarded not merely because of its unfavorable climate, but because of its land surface which permits its inhabitants to scatter. The population though large is not concentrated in cities and therefore lacks both the industrial and intellectual development which

it might otherwise have had. The broad plain composing the greater part of the territory, though unfavorable for early progress, may prove to be advantageous after industrial advance has been made, for it permits easy means of communication. The most favorable topography from the point of view of communication seems again to be moderate homogeneity, — mountain chains which form barriers in early stages of development but which offer no serious obstacle to communication among advanced peoples. If barriers are numerous, or formidable, they keep people from uniting both socially and politically. Such areas are therefore likely either to be cut up into small political units, like the Balkan States, or, if actually united politically, they are liable to be weakened by jealousies arising from local differences.

Conclusion. In conclusion it may be said that physical features have a real and important influence both on early and on advanced civilizations. Such features as natural resources, climate, topography, location, and ease of communication, have been discussed; but it is impossible to lay down any principle as to their relative importance. In some cases one seems to be the determining factor, and in other cases, another. Usually a favorable combination has been necessary for continuous development. The power of a physical factor may change as civilization develops; and that country is specially favored in which the early advantages of the physical environment do not turn to disadvantages as social life develops.

The question of the relative degrees of influence of the physical environment upon primitive as compared with advanced peoples has received much attention. Some writers have maintained that, while the physical environment is undoubtedly of great importance in the development of early civilizations, it is of diminishing significance as civilization advances. But probably Miss Semple is more nearly correct when she says that civilized man is affected by a larger number of physical influences, but that no one of them ever has such a preponderating effect as it may have with primitive man.

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CHAPTER IX

INFLUENCES OF THE LOWER ORGANIC ENVIRONMENT

Struggle with Lower Forms of Life is Both Direct and Indirect. "Turning now to that part of the environment which consists of plant and animal life, we find a clear line of demarcation between the struggle side and the exploitation side of the process of adaptation. The struggle of man with the lower organic environment is of two kinds, direct and indirect. In the former, man himself is in danger and the struggle is for immediate supremacy. In the latter, though man is not directly attacked, both man and lower organisms struggle for the possession of something that is important for existence, usually the food supply.

Primitive peoples, poorly equipped with weapons, found both the direct and the indirect struggles with lower organic life serious. Many of the lower animals are superior to man in size and strength; and he fought a winning battle with them only by means of his superior cunning or by force of numbers. Both primitive art and religion would seem to suggest the intimate and serious part which wild animals played in the life of savage tribes.

In the indirect struggle with animals pastoral peoples undergo considerable losses from attacks of carnivorous animals, while agricultural peoples suffer from the depredations of herbivorous animals. The indirect struggle with vegetable life is chiefly for the possession of the soil. In tropical countries vegetation is so luxuriant that strenuous and continuous labor is required to keep the land cleared for cultivation and communication. Primitive man with nothing but rude stone tools was utterly unequal to the task, and where vegetation grows again so quickly even with modern instruments progress must be slow. Even in the

less fertile colder climates the American Indians did not attempt agriculture where grass had made headway; they preferred wooded areas, where they girdled the trees to obtain sunlight, without attempting to cut them down, and planted in the free soil about their roots. Nowhere can man be said to have been victorious in the struggle with vegetable life before steel implements were invented. In modern times the most important form of the indirect struggle with vegetable life is that of the farmer against weeds. Weeds are a serious pest, not only because they absorb moisture and properties of the soil valuable to crops, but they invite insects and may also introduce disease. The burden placed upon agriculture in the United States from this source is estimated at one hundred million dollars annually.¹

Among civilized peoples direct conflict with wild animals is not the serious problem it was with primitive man, though there are districts where the contest still survives. In India tigers are sometimes very destructive, in parts of Europe packs of wolves are greatly to be feared, and in India poisonous snakes are said to kill fifty thousand people annually. These last deaths however are due less to man's inability to exterminate snakes than to his reluctance to interfere with them for religious reasons. To modern peoples with means of protection at their disposal and with improved offensive weapons, attacks from wild animals are no longer a real menace. What was once a struggle for life has now become a mere sport. Indeed the struggle has become so one-sided that society occasionally finds it necessary to intervene to protect an animal species from complete extinction. Among civilized peoples the serious contest is no longer with animals which are their equals or superiors physically, but with the most diminutive forms of life. We no longer struggle against lions and tigers, but against flies, mosquitoes, and disease germs. Yet this apparently inglorious conflict does represent a life and death struggle, the issue of which has only recently turned in favor of man. The nature of the contest is clear enough. Man, the animal with the highest degree of individual development and a low rate of reproduction, is striving for supremacy over animals having the smallest degree of individual

¹ Kelsey, *Physical Basis of Society*, p. 75.

development but the highest rate of multiplication. Nature's two great methods of adaptation are in conflict, — intellect against numbers, individuation against generation. In a struggle of this kind it is not the poisoned arrow, nor is it the bullet, but rather the microscope, which will win the victory and ensure man's survival. This struggle with parasites and with the carriers of parasites is arduous because the enemy is often so infinitesimal that it is hard to discover; and, again, when it has been determined, its rate of multiplication is so rapid that there is great difficulty in eliminating it. Indeed, the lower the form of life the more difficult of elimination it seems to be.

The Nature of Heterogeneric Selection. The struggle of man with animal and plant life gives rise to a new form of selection, which Pearson has called heterogeneric, a form which is doubtless responsible for a large part of the death rate. An ornithologist has pointed out the fact that birds usually die a "tragic" death. The same thing is however true of man, who also falls a victim to animals, though these are not of superior intelligence or even superior strength, for man encounters insidious attacks of myriads of enemies whose treachery he has never even suspected, or whose presence has not been revealed to him by any of his senses. Under these conditions the tragedy of man seems even greater than that of animals who succumb to attacks from superior forms of life.

Heterogeneric selection cannot always be distinguished in practice from inorganic selection. Individuals who are weakened through imperfect adaptation to the physical environment often succumb to attacks of parasites, which they would have been better able to resist had their physical adaptation been better. For society the problem of heterogeneric selection, like that of inorganic selection, is whether its effect on progress is desirable or undesirable. Heterogeneric selection, like other forms of selection, is a method of adaptation, the adaptation being in this case to the flora and fauna of the environment. Individuals who are particularly susceptible to the attacks of micro-organisms tend to be eliminated, leaving those to survive who have greater powers of resistance. This process therefore tends to produce a race which is immune to the attacks of unseen parasites, or

one which shows greater intelligence in resisting or avoiding their attacks. If the environment could be freed of deadly enemies, it is evident that this selective process could be avoided, and individuals susceptible to parasites would remain alive. So the social gain or loss from using the active or the passive form of adaptation in this case, depends largely upon the question of whether the attacks of micro-organisms tend to eliminate the physically and socially undesirable, or whether they merely eliminate those who lack a particular power of resistance. The fact seems to be that of those who adapt themselves to the inorganic environment, the weak and the strong alike are subject to attack from hostile organisms. Indeed those who are the stronger physically do not always show the greater resistance. Attempts have been made to prove that certain disease germs, such as the tubercle bacillus, are more likely to attack individuals of inferior physique, but the evidence presented has not been convincing; and on the other hand there are other fevers, such as typhoid for example, which seem to be hardest with the most robust. On the whole the eliminative process seems to apply chiefly to those who lack resistance to a particular organism, and resistance is not correlated with general physical superiority. Moreover from the point of view of the social qualities of a population this form of adaptation has no selective value whatsoever. It must be concluded therefore that heterogeneric selection is of little racial or social value. Whatever is gained by its elimination of the less desirable is more than offset by the destruction of the physically and socially superior. Wherever possible then the active form of adaptation to lower organisms should be preferred to the passive. Dangerous organisms should be eliminated from the environment and no adverse results need be feared. Where this is impossible, heterogeneric selection becomes inevitable, and even desirable, for adaptation must go on so long as a people chooses to remain in the same environment.

Losses from Heterogeneric Selection. The extent of the loss to society from the action of heterogeneric selection cannot be accurately given. Karl Pearson estimates that 80% of the deaths are selective, and the greater part of these would certainly be due to heterogeneric selection. In place of a quantitative

exposition of its effects, illustrations of its ravages must suffice. For this purpose one of the worst enemies of man may be selected, a vegetable parasite known as the tubercle bacillus. Tuberculosis is the chief cause of deaths in the United States, though pneumonia has now become a close second. It is responsible for over one hundred thousand deaths in the registration area alone, or about 8.3% of the total number. Frederick L. Hoffman¹ estimated the mortality from tuberculosis in five eastern states and ten cities as 23.2 per ten thousand, during the years 1886-1900, and this showed a decline from 30.7 for the period 1871-1885. Since 1900 a further gratifying reduction has been achieved. The census returns give the annual average for 1906-10 as 16.87 per ten thousand; and for 1915-18, as 14.57; while 1920 showed a still further reduction to 12.56. Hoffman points out that the decline has been more marked for females than for males, and that the rate for negroes has always been much higher than for whites. The extent of the ravages of this disease is shown in a more impressive form in a recent study by Dublin and Whitney² from the records of the Metropolitan Life Insurance Company. It appears that white males suffer a loss of 3.5 years in their average life time because of tuberculosis, or 7.6% of their entire life expectancy. At the age of 20 it is 3.7 years. The loss for insured wage earners is somewhat higher than for the total population; but the average length of life of all individuals who survive to the age of 20 would be prolonged 2.4 years if tuberculosis were eliminated.

Interesting estimates of losses from the point of view of money costs have also been made. Hoffman says that in 1900 tuberculosis caused annually more than 150,000 deaths in the United States at the average age of 35 years, so that the total loss of life is represented by 4,800,000 years per annum. Estimating the net value of a life at 35 years of age at \$50 per annum, he places the money loss at \$240,000,000 per annum. Dublin and Whitney in the study just cited estimate the net value of a human life at \$100 per annum, and conclude that the annual money loss from deaths is over \$500,000,000. Dr.

¹ John B. Huber, *Consumption and Civilization*, p. 89.

² Publications American Statistical Association, December, 1920.

H. W. Thomas¹ of Chicago has computed in greater detail the total money loss for Illinois from this cause. The loss from raising children who die of tuberculosis under the age of 20, is \$1,187,800. The loss from inability to perform labor on the part of the consumptive is \$30,000,000. The loss of savings of those who die before the end of the producing age is \$5,139,000, and the cost of care of the sick is \$225,000. This makes a total cost to Illinois yearly of \$36,551,000. Looking at the matter from this point of view the cost of eliminating deadly diseases would be small compared with the losses incurred by their ravages. The total amount spent in the United States for the prevention of tuberculosis was estimated at \$14,450,000² in 1911.

Although tuberculosis is the most serious single disease that attacks the human race, diseases due to other parasites complicate the situation, for each presents a separate problem of control. Pneumonia, influenza, cancer, and syphilis may be mentioned as some of the most serious germ diseases still prevalent. Smallpox, yellow fever, scarlet fever, diphtheria, and typhoid are among those which are gradually yielding to the progress of science, as shown by decreased death rates for them. Taken as a whole the struggle of man against lower organisms is one of his greatest problems, and the attainment of definite supremacy over these enemies will be of inestimable advantage to the human race.

The Indirect Struggle of Man with Lower Forms of Life. The indirect struggle of man with lower organic life is of the same general nature as the direct. While ordinarily its results are not quite so serious, it may lead to injuries similar in kind. The struggle concerns chiefly the innumerable pests which attack man's food supply. Vegetable products suffer from insects; such as the corn root-worm, and the chinch bug, which damage corn crops; the Hessian fly, which attacks the wheat crop; and insect scales and worms, which infect trees and fruits. Animals are injured by the bites of flies and ticks. Kelsey says that some two hundred insects attack domestic animals in this coun-

¹ John B. Huber, *Consumption and Civilization*, p. 90.

² The survey, 27: 1612.

try. Important raw materials also are liable to extensive damage. Enormous losses in the cotton crop have been caused by the boll weevil, the boll worm, and the cotton leaf worm. An estimate given below, of the total losses from pests, has been made by C. L. Marlott: — ¹

VALUE OF FARM PRODUCTS AND LOSSES DUE TO INSECTS

	Crop Value	%	Loss
Cereals	\$2,000,000,000	10	\$200,000,000
Hay	530,000,000	10	53,000,000
Cotton	600,000,000	10	60,000,000
Tobacco	53,000,000	10	5,300,000
Truck crops	265,000,000	20	53,000,000
Sugar	50,000,000	10	5,000,000
Fruits	135,000,000	20	27,000,000
Farm Forests	110,000,000	10	11,000,000
Miscellaneous	58,000,000	10	5,800,000
Animal Products	1,750,000,000	10	175,000,000
Total	\$5,551,000,000		\$595,100,000
Add to this national forests and products in storage			
			200,000,000
			\$795,100,000

Although it cannot be expected that all losses to crops will be avoided, a loss of over 10%, amounting in value to \$800,000,000, can and should be greatly reduced. A saving of this amount would be more desirable than the addition of 10% to our cultivated land area, for a saving in crops already sown, and sometimes already harvested, would mean a saving of labor now expended without result. To increase crops 10% would involve more than a 10% increase in labor, for the extra supply would have to be raised on the margin of cultivation at the highest labor costs.

In addition to these comparatively regular losses there are occasional losses in particular districts from such plagues as

¹ Year Book of the Department of Agriculture, 1904, p. 464.

grasshoppers, which often do enormous damage. In the tropics ants are a serious menace, for they destroy clothing and all but the very hardest woods, so that houses, utensils, and even railroad ties last there but a short time.

Although insects are the most serious menace to crops because of the difficulty of their control, an astonishing amount of damage is done by larger animals. Mr. W. B. Bell,¹ an expert in the Department of Agriculture, estimated that prairie dogs, ground squirrels, pocket gophers, jack rabbits, and similar pests were cutting down the crops on farms in the western states, ten, twenty, and even thirty per cent; and were reducing the carrying capacity of pasture ranges ten to fifty per cent. It has been estimated also that native rodents cause a loss of \$150,000,000 a year in cultivated crops, and a similar loss in forage on pasture ranges, or a total of \$300,000,000 annually. House rats and mice are some of our worst enemies. They destroy annually \$200,000,000 worth of crops and stored products. And, besides, rats are very dangerous disease carriers.

While our indirect struggle with lower animals is chiefly for vegetable products, the attacks of wild animals upon domestic animals occasion greater losses than is generally realized. Mr. Bell estimates that such animals as wolves, coyotes, bobcats, and mountain lions destroy from \$20,000,000 to \$30,000,000 worth of domestic stock annually.

Exceptional damage to crops may result in such a shortage as to create famine; and then the increasing death rate has results similar to those from the direct attacks of parasites. Advanced nations reduce this damage to a minimum by a diversity of crops. If one fails others may be substituted, and severe famine is usually avoided.

The Utilization of Lower Forms of Life. The utilization, or the domestication, of plants and animals took place at a very early period and has been of enormous consequence in the progress of civilization. Morgan² says that the domestication of animals took place in the middle status of barbarism, but some use was evidently made of animals long before that period.

¹ Year Book of the Department of Agriculture, 1920.

² Ancient Society, Ch. I.

The dog, the first animal to be domesticated, is to be found among tribes so little developed as the Veddahs and the Fuegians. From a study of the Papago Indian tribes of Arizona and Mexico, McGee¹ is of the opinion that zoöculture, as he calls it, developed first in arid regions. In a desert intense struggle between species is not possible, as it is in moister regions where food is abundant. The necessities of its unfriendly environment put a premium upon coöperation among all kinds of plants and animals, including man, to ensure survival. Out of this interdependence there rose first an attitude of mutual toleration between species, and from this there gradually developed between man and the lower animals the more permanent and intimate relationship of domestication.

Shaler² said that civilized societies made use of the products of nearly one hundred animals and one thousand plants. But Brunhes³ estimates that the number of plants which have economic importance do not exceed three hundred,—or one cultivated to five hundred natural species. He estimates the number of domesticated animals at about two hundred. At first, cultivation of grain and domestication of animals were primarily for the purpose of increasing the food supply, and stimulus was found in the gradual diminution of wild game. Probably the first domestic animal utilized for food was the dog which, though tamed for other purposes, served also as a sort of reserve food supply. Later the use of cattle and sheep provided in normal times a regular food supply. When domestication reached this stage man's mode of life changed entirely, as the hunt for wild animals gave way to the search for pasturage and water supply for domesticated animals.

Among advanced peoples both plant and animal products are utilized for many more purposes than for foods. Vegetable products, cultivated and wild, provide shelter, clothing, household utensils and decorations, heat, light, and medicine. Animal products have also been used for all these purposes, though they are most important for food and for manufactures, especially

¹ American Anthropologist, Vol. 10, p. 285

² Domesticated Animals, p. 219.

³ Human Geography, p. 252.

clothing. Textiles are made from wool, from the hair of goats and camels, and from the silk of the silk worm. Furs and skins of animals have always been utilized extensively for clothing and for utensils. And the possession of these products has been of social consequence, not merely because of the value of the products themselves, but because their use has stimulated the beginnings of manufacture and of trade, and the development of the fine arts.

Important to society as has been the use of animal products, the very subjugation and utilization of animals has had a social significance sufficient to deserve separate consideration.

Q **Results of the Domestication of Animals.** *Develops individuality.* One of the most important effects of the utilization of animals lay in the stimulus it gave to the development of man's personality. Morgan attributes the capture and rearing of young animals in the first place to the merest freak of fancy; but this "freak of fancy" probably involved the pleasure which man gets from subjecting another animal to his will. To lord it over another living being, to make it do one's bidding, conduces to a feeling of self-importance and awakens consciousness of power and superiority. In another and more indirect way domestication of animals contributed to the recognition of the value of the individual. The domestication of cattle, introducing pastoral life and necessitating the search for grazing opportunities, resulted in the breaking up of the old communal order of society into family groups. As Fiske points out, only after the domestication of animals could a family by itself obtain the means of subsistence. But with the family group capable of separate existence, the centering of responsibility for the care of children on the parents instead of on the group, increased regard for children and near relatives; and, within the small group at least, raised to a higher level the estimate of the value of human life. To be sure, owing to the conditions of pastoral life, the male head of the family was of paramount importance, so that male children were more highly valued than were female; but development of personality in one part of society only is of course preferable to having the whole group remain on the same low level of consciousness.

A further stimulus to the growth of self-consciousness was the development of private property which originated in ownership of domestic animals. Wherever property begins to be accumulated it becomes identified with the owner — becomes, indeed, a part of his personality. The value of the individual is no longer measured by personal traits alone; his importance, and especially his consciousness of his importance, is derived largely from the things which he possesses. Even civilized man finds it difficult to estimate the true value of the individual apart from his possessions.

Increases sympathy. Another psychological result of the domestication of animals was the development of man's sympathy, owing partly to his intimate association with them and partly to the constant care they needed. Shaler believes that rural populations are kinder than urban; and he attributes the difference to the education they have had in the care of domestic animals. The cruelty which characterized the American Indians was probably due largely to the absence of domestic animals among them. For some reason or other the dependence of an animal seems often to arouse in mankind more sympathy even than the dependence of his own species. The dog and the horse have been particularly valuable in developing social sentiments in man. The dog is the most affectionate of all animals; is probably the only animal in fact which will follow his master from pure attachment. From the earliest times man has been associated more intimately with the dog than with any other animal, and the dog's quality of devotion has stimulated similar traits in his master. The horse on the other hand is not particularly affectionate, but he requires constant and intelligent care; and this necessity for care has stimulated sentiments of responsibility as well as of sympathy in his owners. All animals which have been used for household pets have served the same purpose.

Affects social customs. The use of animals in increasing the food supply, and in raising the estimate of the value of human life, produced interesting social changes in some of the primitive tribes by hastening the decline of cannibalism and causing the substitution of animal for human sacrifices. Any increase in the

food supply, whether animal or vegetable, not only made cannibalism less urgent but permitted also the retention of captives as slaves. Human sacrifice is closely connected with cannibalism; in fact, Fiske thinks that human sacrifice probably originated from cannibalism. Where the two exist sometimes a part of the victim is sacrificed and a part is eaten. The increased value attached to human beings and the presence of valuable animals suggest the possibility of substituting the latter for the former. The story of Abraham's call to sacrifice his son Isaac illustrates the general experience of peoples entering upon the pastoral stage of existence. Among such a people a son, especially the first born, is the most valued of all possessions. At the moment of sacrifice Abraham was told that a ram would be just as acceptable; and usually pastoral peoples have become inspired with the idea that animal could be substituted for human sacrifice.

The social effects of domestic animals are well illustrated when the Aztec and Quichuan civilizations are compared. The Aztecs, who had no domestic animals of the nobler sort, lived in communal dwellings,—that is, the families were not wholly differentiated,—and human sacrifice, both of their own members and of prisoners of war, was common. Cannibalism was also indulged in. On the other hand the Quichuans, who had domesticated the llama, a valuable animal, used it for sacrifice. They did not practise cannibalism, and their family life attained a high stage of development. Again, one of the potent causes for the greater advancement of early civilizations in Asia and in Europe over those in America, was doubtless the presence in the old world of many domesticable animals, and to their scarcity in the new world. The Aryan and Semitic peoples who developed such high civilizations were also those who made the greatest use of domestic animals.

The Uses of Animals. *For draft purposes and transportation.* The economic utilization of animals, besides having a share in developing the individual, has increased production and altered the economic organization. The employment of animals for draft purposes practically revolutionized agriculture. A people can by manual labor produce sufficient food for their

own support; but they cannot obtain any considerable surplus for commerce without animal power for ploughing and transportation. Cattle were first used extensively for farm labor, as they were more easily raised than horses, and the ox is a powerful animal; but cattle are slow, and the cloven hoof is weak, consequently the need for greater efficiency in farming finally forced the substitution of the swifter though more expensive horse for horned animals.

The use of animals as beasts of burden, and as means of transportation, served to develop trade and intercourse during the long period before the invention of steam power. Man is too slow to travel far on foot and too weak to carry heavy burdens, and therefore commerce over considerable distances would have remained small had it not been for the help of strong animals. In transportation again the horse has been of general use, as it combines strength with swiftness and is of a size to be easily managed. In arid regions, however, the camel has been particularly well adapted for transportation purposes. The elephant is too large and unwieldy to be used in many ways, but it is practically the only animal that can be used for mechanical work. It is extremely intelligent and uses its trunk almost like a hand, hence it can be taught to pile timbers and to move heavy loads without mechanical assistance. The intelligence of elephants is all the more remarkable because practically all those in use were captured from the wilds. They breed so slowly that they have not been subjected to the selective process in domestication.

For military purposes. The employment of animals in warfare has had a notable effect upon history, though their use in war has been of far less consequence than their use in the peaceful arts. The utilization of the horse and the perfection of horsemanship caused cavalry to develop in Asia, while infantry was being perfected in Europe. Cavalry formations, particularly before the invention of gunpowder, were exceedingly effective and often turned the tide of battle in favor of the side possessing horses. In addition to the effectiveness of cavalry in breaking up infantry formations, the swiftness of the horse gave rapid means either of pursuit or of flight. The

domination of the world by the Aryan race is said to have been largely due to their utilization of horse power. The conquest of Peru was made much easier because of horses. The Incas were terrified at the mounted soldiers; and, according to the records, horses were as effective in the conquest as superior weapons. Although in modern conditions of warfare cavalry is of less consequence than formerly, it is still valuable where fighting is in the open. And the employment of horses and mules behind the lines is still so advantageous that it is difficult to see how they can ever be entirely displaced.

For scientific purposes. In recent years entirely new ways have been discovered for utilizing animals in the service of mankind. Through our observation and examination of them our knowledge of anatomy and of heredity has been greatly advanced; and in addition, through animal experimentation, great progress has been made in medicine and surgery. Some of the notable discoveries made or perfected through animal experimentation have been the anti-toxin of diphtheria, septic methods in surgery, methods of transfusion of blood, and the serum for cerebro-spinal meningitis. Where animals have been used for experimentation, they have in the great majority of cases been subjected to no pain; sometimes they have been inoculated with disease germs; and occasionally direct pain has been inflicted. But animals are after all less valuable than human beings, and the sacrifice of a few has been the means of restoring the health and preserving the lives of countless human beings. Dr. Flexner perfected his serum for meningitis by experiments upon twenty-five monkeys and one hundred guinea pigs,¹ and this serum restores to health hundreds of human beings each year. After a discovery has once been made the gain to humanity is perpetual. The result has been regarded as so important that scientists have even offered themselves for experimentation for the good of humanity in cases where experiments upon animals would not suffice. Animals are used also for the production of the serums and vaccines used in the treatment of human diseases.

For the destruction of pests. Another utilization of animal

¹ W. W. Keen, *Animal Experimentation and Medical Progress*.

life, gradually being extended, is the destruction of noxious animals through the introduction, or deliberate increase, of harmless varieties which feed upon them. From the earliest times domestic animals, such as the dog and the cat, and occasionally wild species, such as the snake and the toad, have been used to exterminate vermin; but the extensive employment of wild animals as pest exterminators had to wait more accurate knowledge of their life habits. At present birds are most commonly used in this way. Sufficient study has now been made to enable us to distinguish in most cases between the desirable and undesirable species; and we are beginning deliberately to protect and encourage the multiplication of those species which feed on destructive worms and insects. Large birds, such as hawks and owls, — more than fifty species in all, — feed on rodents; and smaller birds, such as cuckoos, woodpeckers, and flickers, feed on caterpillars and insects, including destructive ants. Bluejays destroy the nests of the brown tail moth. Vireos and many varieties of warblers protect the foliage of trees by consuming small insects. And tiny birds, such as chickadees and titmice, do their part by industriously hunting small insects, larvae, and eggs of insects. Birds which are definitely known to do more harm than good are comparatively few in numbers. They include seven kinds of hawks, several species of owls, and the golden eagle. The wanton killing of birds has resulted in enormous losses to crops through the spread of pests which birds ordinarily consume. A few reptiles are useful for the same purposes as are the birds, and it is even possible that harmless insects can more frequently be employed to destroy other species that are injurious to plant life.

The introduction of a new animal into the environment is attended, however, with considerable risk for it sometimes destroys the balance of animal life, or the animal produces unfortunate results by developing unexpected feeding habits. The introduction of the English sparrow is an illustration of an undesirable addition to bird life. Other animals have been even more objectionable. The rabbit, after its introduction into Australia as a new food, multiplied so rapidly that it became a destructive pest, and much labor had to be expended conse-

quently to protect vegetation. In some sections it actually became a question whether the rabbits or the human inhabitants would survive. Another notable example is that of the introduction of the mongoose into Jamaica to rid the plantations of rats. It succeeded in its mission so quickly that soon it was forced to seek other kinds of food and began to exterminate useful animals and even to feed on the sugar cane itself which it was supposed to protect. In introducing an animal into a district to eliminate a pest, we seldom consider what that animal will feed upon if it is successful in its mission. Nor do we always realize that an animal apparently undesirable may after all be feeding on other animals or insects still more objectionable. The complete feeding habits of an animal must be known before sentence can be pronounced against it. With more adequate knowledge of the life habits of the lower animals, however, it is possible that we shall be able to create a balance of life among them more nearly in accord with our welfare. In this way we shall be utilizing the lower animals without being obliged to domesticate them.

For aesthetic and social enjoyment. Finally it should be added that both plants and animals are used to contribute to our aesthetic enjoyment; and animals, and in a sense even plants also, are made to add to our social pleasures and to companionship. The cultivation of flowering and of other plants for decorative purposes has become a great industry. And the pleasure and healthful enjoyment which many people derive from the private cultivation of plants cannot be ignored. The use of animals and animal products for decorative purposes presents a more difficult problem. Of these products a few are obtained only through the cruel and inhuman destruction of animal life,—sacrifices which, by the way, are not followed by the priceless benefits that result from the sacrifice of animals for the advancement of science. Only those products which are obtained without inflicting injury are proper materials for aesthetic uses.

The uses of animals for pets, for companionship, and even for protection, are of noteworthy importance to social life, and are open to few objections provided the animals selected are

capable of undergoing the restraints of captivity, and also provided the animals themselves are kept in a healthy state. Most of the evil results come from neglected animals, although cats are ruthless destroyers of valuable birds unless they are more carefully confined than is usually the case.

The use of the ordinary domestic animals for pets is so common as to need only a passing mention; but the possible use of wild animals for this purpose is not generally realized. Several birds, as for instance the chickadee, and a few wild animals as well, are really friendly by nature and may be partially tamed, especially in the season when their natural food supply is scarce. Mutual service can be rendered, and the acquaintance may be made the source of great pleasure and educational profit. Inasmuch as the bird is left in its natural environment, free to follow its natural habits, it does not become a care, nor does it suffer from the restraints of captivity. If this new method of making pets should be developed it would extend the sphere of association between man and animals to include many new species, would help to safeguard valuable species, and would also add the benefit to be derived from association on terms of equality. Association between man and domesticated animals is on the basis of superiority and subordination, the animal being molded to the will of the master. Friendship with wild animals would require study of their habits, exercise of patience, and a consideration of their likes and dislikes, which would open a new and wholesome chapter in the relationship of man with some of the humbler species that serve him.

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CHAPTER X

THE STRUGGLE OF GROUPS

The Human Environment. Turning now to the third division of economic phenomena, the relation of man to the human environment, we enter the general province of social selection as distinct from natural selection. The same sharp distinction appears between the struggle phase and the utilization phase in the relationship to the human environment, but both are more complicated in their action. The struggle of men with one another is obviously of two kinds: the struggle between groups, and the struggle between individuals within a group. Both forms lead to a selective process, which Pearson calls autogeneric selection. In its less intensive forms this struggle leads to social gradations, and to the division of labor. The phenomena connected with group struggle will be considered first.

Causes of Group Conflict. Group conflict has been almost universal, except with the few peoples who have been isolated from their neighbors by physical barriers. The explanation of group conflict is, briefly stated, that when groups realize that their interests are dissimilar they separate and make war, and when they feel that their interests are similar they coöperate or coalesce. Now the degree of unity in interests between peoples has ordinarily varied with economic organization and with means of communication. As economic life progresses in form and as means of communication improve, the attitude of nations towards one another changes, the lines of friendship and of enmity are shifted, and new alliances are formed. And the course of warfare itself has been from petty conflicts of small groups to organized struggles of large nations, or groups of nations. Eventual subsidence of all war will depend upon whether mankind can ever be made to feel a unity of interests

fundamental enough to outbalance temporary and minor diversities of interests.

The immediate reasons for conflicts in interests have been numerous, and in many cases have been included in a combination of causes. Primitive tribes have sometimes attacked their neighbors because of vague fears of danger rather than from clearly defined purposes of gain; and it is not improbable that similar apprehensions have motivated wars among advanced peoples. Unequal ratios of the sexes have caused primitive peoples to make war in order to capture women. Ambitious sovereigns have frequently involved barbaric peoples in war in order that they might extend their territories and rule over larger numbers. As any fundamental dissimilarity between peoples is always a hindrance to friendly coöperation, racial differences form a basis for perpetual enmity. Intellectual diversities also have brought on conflicts, for, in periods when even shades of belief were deemed important, variations in religious opinions caused irreconcilable differences and impelled peoples not only to war, but to the extermination of the conquered. But all these causes just mentioned, however important they may have been at particular periods, are in the long run quite subordinate to the more fundamental economic influences which have doubtless been the most common, though often not the obvious, causes of war throughout the history of mankind. Even when on the surface other causes have seemed of paramount importance, economic rivalries have often been the fundamental cause, or at least a contributing one.¹

In all stages of social economy conditions ultimately develop to arouse opposition between people and tempt men to war. In the hunting stage of civilization the gradual disappearance of game brought tribes into contact in their search for food and conflict resulted. In the pastoral stage of existence the situation was little altered. Any increase in flocks and herds necessitated extension of pasturage and inevitably led to conflict with other tribes similarly situated. The story of Abraham and Lot is a classic illustration of the way in which conflicts arise be-

¹ For the economic causes of war see Robinson, *War and Economics*, in Carver's *Sociology and Social Progress*, Ch. 9.

tween pastoral peoples. Failure in water supply has probably been a frequent cause of migration with pastoral peoples; and migrations cause new contacts often resulting in war. Among agricultural peoples war arises from somewhat different causes. Being sedentary they do not come into conflict with others on migrations in search of food. But when their own land fails to supply sufficient food, they covet the territory of others, as is the case with hunting and with pastoral peoples. Scarcity with them occurs either when the land has become worn out through predatory methods of farming, or when the population increases with no corresponding improvement in methods of agriculture. Agriculture obeys what is known as the law of diminishing returns; that is, a larger amount of produce can be raised on a given amount of land only at a proportionately greater labor cost. Therefore a population that is growing will be supported with increasing difficulty; and with agricultural peoples the temptation will become strong to extend their territory, or gain wealth in some form, by means of war upon other nations. Indeed, in the agricultural stage of development the underlying purpose of war and conquest is usually extension of empire to control more land, or to force tribute to supply more food.

In the industrial stage of economic life conditions change again, but the germs of warfare are still active. Manufacturing industries generally obey the law of increasing rather than of diminishing returns; that is, in manufacturing, a larger product can be obtained at a smaller labor cost per unit of product. Under the industrial régime therefore it might seem possible for a nation to provide for the needs of a growing population without encroaching upon its neighbors. But the difficulty under this system of production is merely removed one step, because industrial products must be exchanged for food. So long as a manufacturing nation has plenty of markets among agricultural peoples in which it may exchange manufactured products for food, it can take care of an increasing population. But pressure of population in agricultural nations causes more and more of them to turn to industrial pursuits; and as the purely agricultural territory diminishes, and the number of industrial nations increases, the question of markets becomes correspond-

ingly serious. So conflicts arise among industrial peoples for the acquisition of colonies and the control of markets. In all stages of civilization therefore the need for more food, either because of diminution in the accustomed amount or because of increase in numbers to be fed, is a determining cause of war.

Although economic competitions are likely to underlie group conflict, the relationship between modern nations is very complex and other forces, acting near the surface and being therefore more conspicuous, are usually accepted as adequate explanations of wars. The late World War offers a good illustration of complexity in causes leading to conflict. If we pass over the history of diplomatic relations, looking upon them merely as surface demonstrations of underlying currents, the cause of the war lay apparently in the unrestrained ambition of a ruler. If the reason for this ambition is sought, however, it can be traced to the influence of a materialistic philosophy permeated with racial egoism, which was manifested in the political and social ideals of the people. Differences in social ideals between nations is usually a satisfactory explanation of war even to those who are accustomed to go beneath the surface of things to get at fundamental causes. But these Teutonic ideals, if further examined, will be found to owe their derivation largely to two sets of factors not wholly unrelated: on the one side, political structure; on the other side, an economic situation of remarkable industrial achievement combined with rapid growth of population. And these two factors traced back still farther depend ultimately upon physical environment.

Effects of the Struggle of Groups. *On the selective process.* The most important effect of group conflict is in the long run its influence on the selective process. This is an influence which varies naturally with different methods of warfare. In early times, when war was more of an individual matter and success a question of personal prowess, such qualities as strength, cunning, and bravery might win out and the resulting individual selection would be at least partially favorable. But under modern conditions of warfare it is difficult to see any favorable aspect whatsoever in this process. In the first place, armies are chosen out of the total population from individuals of the most

productive ages and therefore from the most valuable members of society; and, secondly, from this group are selected the large, the strong, and the healthy, while the small, the weak, and the diseased are rejected. Therefore at the start an army is made up of the best in society. Kellogg says that in France and Germany in times of peace about one-half of the young men who arrive at military age are rejected because of defects of one sort or another.

Furthermore in time of battle no positive direction to the selective process can be detected in its action on the army. The courageous are as likely to be killed as the cowardly, the larger and stronger are as likely to fall as the weaker. From the point of view of society as a whole therefore selection from war would seem to be distinctly adverse. Those who are endangered are of the nation's best, and those who are not killed or incapacitated are kept away from home, often for long periods of time, so that reproduction in war times is from the inferior part of society.

While the above conclusions are in theoretical agreement with the principles of selection, statistical verification is difficult; and opinions differ with regard to the actual effects of war on a measurable character, such as stature. Kellogg after a careful review of the evidence concluded that the average height of the men of France began to decrease with those born during the revolutionary wars, and that the decrease continued throughout the Napoleonic wars. After these periods stature began to increase again, the gain amounting to about one inch. A similar fluctuation was shown also in the numbers of exemptions for infirmities during these periods; that is, the selection of the Napoleonic wars was distinctly adverse, not only reducing the height of the men but increasing infirmities and disease among the next generation. De Lapouge came to the conclusion that a diminution of stature was perceptible in French recruits born during the Franco-Prussian War; but others deny this, and it would probably be difficult to prove such a result from a war of short duration.

In addition to his conclusions with regard to the effects of war upon the physique of a people, Kellogg makes a strong point

also of the dysgenic effects upon them of diseases, particularly venereal diseases. The adverse racial effects of these diseases are generally admitted, and the demoralizing effect of war appears from the fact that these diseases are much more prevalent in an army than in a normal civil population.

If a war is severe and prolonged, a strong selective process appears in the home population because of an excessive death rate from malnutrition and other forms of privation. The mortality is particularly high among the aged and among the very young. While it might be assumed that the weaker rather than the stronger would succumb to such hardships, the problem is complicated by the fact that individuals, especially children, receive unequal care in war time. It is quite possible that children of superior fathers absent in service might be more neglected than children of inferior parents remaining at home. Still, while the effects of selection upon the home population are far from clear, it is probable that, though the loss of life itself is deplorable, the trend of selection is likely to be more favorable than it is in the army.

Where selection from war removes not only the physically superior, but the intelligent and the talented as well, its effects are indeed most serious. This was the case when war was a gentleman's profession and it may also happen now if a state is decidedly militaristic in its organization so that the ablest men are attracted to army service, or if wars are so severe or prolonged as to necessitate the mobilization of the entire resources of the nation. During the Wars of the Roses, England lost practically its whole nobility,—supposedly its best men. Political wars frequently result in the extermination of the leaders of the losing faction, and religious wars lead to death or exile of original and independent thinkers. Inasmuch as these effects are losses, the results cannot be positively estimated, since no one can foretell what might have been; but the supposition must be that such wars delay social progress greatly through the loss of talent as well as through interruption to social life. Sometimes national losses have had their compensation in the establishment of a great principle; but usually the conflict has been merely a long continued struggle for power,

with the more brutal and unprincipled victorious and the socially superior defeated if not exterminated.

While it may be conceded that the selection of individuals arising out of group conflict is adverse, it is sometimes maintained that the selection of groups is favorable, and that the social results of war should be judged on that basis. Bagehot has pointed out that in early times tribal conflicts tended to result in the victory of the best organized tribe and that the conquerors imposed their superior methods upon the conquered at a time when discipline and law were most important for human progress. Under conditions of primitive warfare it is quite possible that selection might favor groups which were superior politically or socially; but in modern times nations vary in so many ways that military supremacy does not always indicate social superiority. A large nation may overwhelm a small one, even though the latter has the more brilliant civilization; and a militaristic nation may exterminate or subjugate a peaceful industrial people who possess superior qualities, though they may be deficient in the means of defence. In primitive times the need was for the establishment of a strong organization in place of a weak one; and the spread of the military system of the conquerors was a gain, because it furnished a better means of organization and discipline. In modern times, however, the forcible extension of the social organization of a conquering people may not be so advantageous, for, although it may be superior for purposes of conquest, it may be inferior for progress in times of peace, and may also be ill-adapted to the genius of another people. The most ardent advocates of war must admit that at best it is merely a means of further development and not an end in itself. Under these circumstances the encroachments of militaristic peoples upon industrial peoples may sacrifice the real achievements of civilization for other means of obtaining the same objective. Warfare assures a group selection which is favorable only from a military point of view. It will result in favorable selection from the social point of view only if the opposing groups are approximately equal in military strength, so that the issue will be decided by individual or social characteristics which are directly valuable for peaceful develop-

ment. And it is needless to add that under those conditions favorable group selection will be much more surely attained through peaceful competition than through group conflict.

The loss of life. Whether the trend of selection due to war is favorable or unfavorable, the loss of life in itself entails an enormous sacrifice of social energy. De Lapouge,¹ in an early estimate of losses in war, arrives at the following conclusions. Leaving out of account ancient wars, he estimates that in the five hundred years before our epoch the victims numbered no less than two and one-half billions. Among recent wars, those of the period of the French Revolution cost 1,800,000 French and 2,500,000 foreigners; those of the Empire cost 2,600,000 French and 3,500,000 foreigners. More recent wars up to the great World War have included 2,500,000. These figures are in excess of those of Bodart² who estimates that the wars of the period of the French Revolution cost France 1,000,000 lives, and those of the Empire an equal number, and that another million has been lost in more recent wars, making the total for France, 3,000,000 in a little over a century. Bogart gives the total losses for all countries from 1790 to 1913 as 4,449,300. The losses in the recent World War were, according to Bogart: —³

Killed	10,000,000
Seriously wounded	6,295,512
Otherwise wounded	14,002,039
Prisoners and missing	5,983,600

It is thought, however, that at least one half of the missing were killed. Such an excessive loss of man power cannot fail to have a disastrous effect on the economic life of the nations involved. The losses of France in the wars of the Revolution and of the Empire must have seriously affected her economic prestige among nations. As for the effects on the population itself, Bodart in his conclusion says: — “We range ourselves on the side of those who affirm that war has had its large share in

¹ Les Sélections Sociales..

² Losses in Modern Wars..

³ E. L. Bogart, Costs of the War, p. 270.

producing the present stagnation or even decrease in the French population." The history of many nations would have been entirely different had the victims of war been permitted to live out normal lives in peaceful pursuits.

Money costs of war. Next in importance to the loss of life come the losses of wealth in its various forms. This waste includes not merely governmental expenditures, but the destruction of wealth in areas of fighting, and the diversion of capital and wealth to unproductive ends necessitated by war. Bogart¹ estimates the direct costs of the late war as \$186,000,000,000; and the indirect costs,—such as the destruction of property, depreciation of capital, loss of production, interruption of trade, etc.,—at as much again; or a total gross cost of about \$370,000,000,000. Not all of this expenditure can be reckoned as a loss, however, for part of it went as living expenses of the soldiers, and part for productive purposes, such as railroads, ships, etc., so that the net economic loss is placed at about \$244,000,000,000. In addition to these losses in war time, the cost of carrying on military organizations in times of peace is very burdensome. Novicow,² writing in 1893, estimated that it cost Europe directly 4,782,000,000 francs besides the loss occasioned by keeping soldiers from productive work. Dr. Jordan says³ that in 1911 the world was spending on armies and navies over \$4,000,000,000 annually; and the conclusion of Novicow, as far back as 1893, was that even then the value of property devoted to war purposes in Europe was not far from \$12,000,000,000.

Other economic effects. The economic effects of war are however even more far-reaching than is implied by the loss of man power and by the destruction of property. For example, besides such evident losses during our Civil War, as a result of that war the United States has supported an enormous pension list, which has continued and even increased over a period of more than fifty years; it has suffered the evils resulting from disturbance in prices, and the consequent additional losses and

¹ Costs of the War, p. 268.

² Les Luttres entre Sociétés Humaines, p. 224.

³ David Starr Jordan, War and Waste, p. 13.

hardships from a depreciated currency; it has been burdened by the imposition of unjust and unequal taxes and the survival of an unscientific system of taxation. Such results are not peculiar to this particular war but are almost certain consequences of any great conflict.

Political integration. Not all the effects of war are detrimental, though any favorable effects are more indirect and in many cases would have been realized sooner or later without war. One of the beneficial results of war has been the occasional welding of small antagonistic states into larger political units. Thus the enforced centralization of England and of France under strong rulers contributed greatly to their later progress; while the retarded condition of Germany was due to the prolonged existence of numerous petty independent states. Novicow, however, does not believe that warfare ever does bring about integration, and he cites the continuous warfare among the early German states as a factor retarding their unity. It is quite true that warfare does not always cause unity. It may even promote division and disintegration, particularly if the states involved are approximately equal in power. But integration certainly can be brought about through conquest by a stronger power; and struggle against a common enemy may also cause states to coalesce.

The conclusion should not be drawn, however, that integration resulting from conquest is necessarily desirable. Whether it is an advantage or not depends largely upon the degree of fundamental similarity between the peoples uniting. Progress requires that social unity shall follow political amalgamation. An enforced integration of diverse and antagonistic peoples cannot be followed by social unity and is always of doubtful value. Any advantage there can ever be where integration is enforced, occurs only during the early stage of development when its institutions and customs are in the process of formation. Then it is possible for superior institutions of a conquering people to be successfully extended over the larger area. But if a people has once perfected its institutions and become accustomed to them, complete integration with another state is difficult and usually not even desirable. For such cases a loose confederation

may offer all the desirable results of amalgamation and still permit the continuance of national institutions and ideals. Usually when forced integration of advanced peoples is attempted, the underlying motive is really exploitation rather than the welfare of all concerned.

Although desirable forms of federation, which broaden the foundations for progress, have often been produced by conquest, such integrations may also be accomplished without the use of force. Unity by force is usually effected before the time is ripe for voluntary federation; and such unity is only the external symbol of integration,—the real process of assimilation must be worked out later. On the other hand, voluntary federations of peoples really indicate the final act of a fundamental unity of aims and ideals. Hence the latter when it is achieved is more harmonious and more stable.

May bring lasting peace. War has also had the advantage in occasional instances of bringing about an enduring peace. When peace has resulted in true amalgamation, struggle among the peoples united has definitely ceased. Again, sometimes a war decides a question which has been an irritating cause of opposition, and with that problem eliminated conflict ceases. While the results of such conclusive struggles are doubtless advantageous, they can hardly be used as arguments in favor of war even with universal peace as our objective. In these cases war of some kind was inevitable, and of course a single decisive war resulting in permanent peace was more favorable than a succession of wars arriving at no decision. These beneficial wars are moreover few and far between compared with those conflicts arising out of personal ambition whose injustices have sowed the seeds for future wars.

May stimulate trade and industry. Important economic as well as political consequences sometimes follow wars. War brings peoples far removed from one another into contact, causing association likely to prove stimulating to permanent increase in travel and in trade. The Crusades brought the European peoples into contact with the East, introducing them to new scenes and to strange peoples. They aroused desire for the products of the East, and this in turn stimulated trade and

developed industry throughout Europe. The demands of the recent World War brought whole armies of Americans and Australians, who otherwise would never have visited Europe, into contact with European countries. And while the occasion was not opportune to give them the usual benefits of contact with older civilizations more advanced in all forms of culture, this association could not fail to enlarge the vision and foster sympathy and good feeling among all the nations united in a common cause. Sometimes war creates mutual respect and esteem even between combatants; and this is most likely to happen if the opponents were little known to each other beforehand; and especially if the war were so conducted as to bring out the more admirable individual qualities. In early times when all foreigners were barbarians and, being little known, were held in contempt, contact through war sometimes disclosed the essential similarities of peoples and drew them together. Such enlarged association and increased respect would have been long delayed in early times had it not been for war. On the other hand when a war has been bitterly contested and rein has been given to the more brutal and contemptible qualities of human nature, oppositions may become so strong that association declines after peace is declared. Hatred of the adversary may be long enduring. On the whole then, while war may indeed promote sympathetic understanding between distant peoples, the contacts it forces are not nearly so normal or valuable as the peaceful contacts brought about through travel and trade. And when war breaks out between peoples who already have economic relations, evil consequences to association and trade are more likely to be realized than good.

Stimulates inventions and improvements. Another benefit supposed to be derived from war is that it encourages inventions and promotes improvements in methods. The principle that necessity is the mother of invention applies with particular force in times of stress and danger. Under the stimulus of war great strides have been made in means of transportation and in methods of defence and offence. In the last war the art of flying was perfected more rapidly under stress of necessity than would have been possible in a much longer period of peace.

Nor is progress entirely confined to the mechanical arts. Methods of government and administration are improved, corruption and dishonesty of officials are so far as possible eliminated, and obsolete and cumbersome methods are replaced by simpler and more effective ones. Improvements of this kind have however been primarily of military value, though a few war inventions have been of permanent worth to industry as well, and new methods of administration have indirectly benefited society in times of peace. While the stimulus of necessity in war time is usually a source of improvements, the needs in times of peace resulting from a growing population would stimulate more directly those inventions and improvements best adapted to promote civilization.

Makes possible the introduction of social reforms. Closely related to the preceding consideration is the claim that war offers the opportunity for introducing many social improvements. During periods of uninterrupted peace society settles down to customary activities. It tends to become fixed in its methods and offers considerable resistance to the introduction of reforms. War is a disrupting influence, necessitating rapid reorganization of society, and individuals are shaken out of their accustomed modes of living. Sacrifices must be made and valued conventions broken. The changes which have to be accepted reconcile people to the general idea of change; and after a period of social upheaval it is easy to introduce reforms which it would take years of agitation and education to accomplish in ordinary times. A case in point is the progress of the prohibition movement during the late war; and other reforms in connection with the emancipation of women, with the attainment of industrial democracy, and with government control of industry, were advanced with little opposition during the unsettled period of the war.

While the upheavals resulting from war doubtless do offer exceptional opportunities for reform, it should be remembered that in ordinary times the most progressive nations change the most easily and hence stand less in need of disrupting influences than do conservative nations. Furthermore a subtle danger lurks in reforms that are introduced after periods of great dis-

organization. They are likely to be rushed through and accepted without sufficient deliberation. Real mistakes are often made and society has to retrace its steps, so that apparent gain is turned into loss. In the clamour for reforms during the French Revolution many institutions and ideas, including God himself, were abolished, which society after more mature deliberation decided to restore.

The alleged stimulus to morale and patriotism. The more extreme militarists also argue that war and military training produce strength and vigor, develop manly qualities, and stimulate to a high degree morale and patriotism in the general population; while peace and safety produce weakness, effeminacy, and corruption. But there seems to be little basis for such claims. That war should produce permanently superior traits would be contrary to the selective process present in it, which destroys superior individuals. War tends to destroy the finer sensibilities and stimulates the spirit of force and brutality in place of the moral virtues. People who have suffered the horrors of war are degraded and a long time is required to restore their morale.

The claim that military training develops superior physical and mental qualities is a superficial conclusion drawn from the fine appearance of troops. It is true that military training, when compared with no training, does improve the physique; but it is not at all certain that it is the best training to produce an alert mind and all-round physical efficiency. The bravery and valor shown by the hastily constructed armies of non-militant countries would seem to indicate that war presented merely the opportunity for the display of admirable physical and mental qualities that had originated under other conditions entirely. Furthermore it must be admitted by everyone that the abnormal life of the soldier in barracks has produced the opposite of fine moral and social qualities.

The question of the development of patriotism is a similar one, and the conclusion again is not in favor of militarism. Warfare does not create patriotism but merely gives an occasion for the expression of the patriotism already existing. In times of war those who were unpatriotic before are hostile still, while those who loved their country most are most active still

in serving her needs. Warfare is merely a means of bringing to the surface sentiments which previous training and discipline have planted in the heart. True patriotism develops under a government which deals justly and humanely with its citizens, and under a social system which permits the freest all-round development of the individual. The absence of these fostering conditions in a state can never be compensated for by any attempt to stimulate patriotism through conquest and humiliation of neighboring states.

The Abolition of War. An examination of all the gains and losses of war convinces one that as civilization progresses the advantages tend to diminish, while the disadvantages tend to increase; and this, not merely for civilization as a whole, but usually also for each of the participants. One is therefore led to hope that, as the balance shifts more and more against it, war will automatically cease. But such optimism is not wholly warranted. Men make war because of hopes and fears, — not because of certainty of tangible gains. If the results of wars could always be foreseen many would of course never take place; but, even when it is evident that the results are going to be detrimental to civilization as a whole, there are still nations who desire war, hoping that they themselves may reap some gain through the losses of others. Before war can be finally abolished, not only must its disadvantages actually over-balance its advantages, but all must be made to realize that such is the case.

Aside from all social and ethical considerations, the economic conditions previously outlined persist as incentives to war; and many are of the opinion that they cannot be overcome. They believe that the struggle for food will always continue, and that therefore economic wars will always be a part of the great social process. As economic conditions are the chief causes of war, their nature deserves careful consideration. It has already been pointed out that either a decreasing amount of food or an increasing population tends to drive people to war in order to satisfy pressing needs; but these conditions are not inevitably followed by war. If India is visited by a famine, she does not therefore make war upon her neighbors; on the contrary more favored nations give of their abundance to satisfy her need,

thus developing charity and international brotherhood. In like manner peoples with rapidly growing populations do not always go to war to satisfy their wants. Pressure of population sometimes does, to be sure, lead to war; but it may also lead to peaceful migrations, or it may stimulate the development of the arts and improve methods of production, or, failing these palliatives, the pressure itself may finally react to lower its rate of increase. Any one of these possible results would relieve the necessity for war; and progress in the arts especially would initiate improvements, greater beyond all comparison, than any benefits to be gained by war. The solution of the problem would therefore seem to lie in directing the excess of energy arising from an increasing population into these productive channels instead of utilizing it in war. And if war could be prevented or even delayed the rate of increase in population would, at least among civilized peoples, finally be checked automatically, and this incentive for war would gradually disappear.

It would seem that, under the present conditions of international relations, genuine progress might be made towards the abolition of all war; first, by means of advance in unity of interests, and, secondly, through strengthening the sentiments of repugnance to war and through a growing realization of its futility. Unity of interests normally keeps pace with economic interdependence of peoples, though intellectual similarity and harmony of ideals also foster it. Territorial division of labor has already proceeded so far that any extended conflict is likely to cause greater losses than gains. That this situation is not sufficient by itself to stop war is because there still remain nations who are not yet convinced that the losses must inevitably outbalance the gains, and other nations who still feel that war is unavoidable and that therefore the losses must be endured. A condition of interdependence which is likely to produce a balance of loss instead of gain is however a fundamental requisite for arousing a strong sentiment against conflict. Fundamental economic conditions are already favorable in the main for developing an anti-war spirit sufficient to overcome any lingering feeling of possible gain to be derived from conquest.

Now taking for granted that specific gains from warfare are

unlikely, the reasons which would cause people to refrain from war are of two kinds: first, the knowledge that warring nations will be condemned by the civilized world; and, second, the realization that justice can be obtained in case of disagreements without resorting to war. The more certain this latter appears to be, the stronger will be the condemnation of war. Hence the creation of a just tribunal to which international disputes may be submitted would seem to be the first step towards accomplishing this end. The creation of an active sentiment in favor of the tribunal and against war must be accomplished through education. During the period when the machinery for international peace is being firmly established, the moral sentiment against war may be advantageously supplemented by positive penalties, probably in the nature of economic boycotts. Such penalties however should forestall war itself. They should be imposed upon a nation, not after it has actually declared war, but after it has shown aggressive intention by preparations exceeding the limits prescribed by international agreement. By this means a nation may perhaps be kept from that stage of armament and that spirit of arrogance which prove almost irresistible temptations to aggression.

These are the more fundamental conditions necessary for the establishment of international peace and justice, but they may be supplemented by other means. Quarrels between individuals within the state occur notwithstanding all the machinery of civil justice, and they do so more easily between those who harbor feelings of enmity than between those who have enjoyed friendly sentiments. The same is true of nations. Hence there is danger in all measures which tend to arouse suspicion or fear, such as secret treaties, or systems of trade relations which seem to seek unfair gain. Trade and tariff wars contribute seriously to permanent enmity and resentment. On the other hand, international travel and intercourse, a common literature, free dissemination of intellectual products, — all promote friendship and contribute to a mutual comprehension of ideals. It is also possible that financial and economic unity might be furthered by conscious effort; but such action is difficult, and probably for the present better results will be achieved by concentrating effort on

counteracting the present strong tendency towards nationalism and economic self-efficiency.

At the present time strong sentiments exist both for and against war, and the tide may be turned in either direction by consciously active endeavor. With most of the advanced nations opposition to war is already strong, except possibly for two reasons; first, for the settlement of questions of national honor, and, second, for the alleviation of inhuman conditions. With individuals honor is no longer vindicated either through duels or by continued feuds, but through the action of courts of justice. For nations there must be established international tribunals of justice so trustworthy that they can be depended upon to uphold and not endanger the honor of these groups. The danger of leaving questions of honor to the arbitrament of war is that nations become over sensitive to them, often mistaking for a great principle a desire for vengeance, or even ambition to enlarge their areas of influence. As to the advisability of war for the alleviation of human suffering, it is always of doubtful expediency to try to teach principles of humanity by inhuman means.

Milder Forms of Group Struggle. The discussion of the struggle of groups has been confined to actual warfare, because that has always been its most common form and because it is still of chief interest. But it is not the only form growing out of group contacts. Physical conflict may disappear and be replaced by competition and rivalry of varying degrees of intensity. And as the amelioration proceeds the evils of struggle will diminish leaving only the benefits of stimulating rivalries. The modified form of struggle is best seen in economic life where, to be sure, competition may be bitter and destructive; but it is undeniably less extreme than war and it does bring constructive as well as destructive results. Economic competition, as has already been pointed out, is likely to provoke political conflicts, if oppositions are unrestrained; but the hope is that economic struggles may be confined within safe limits by diminishing their destructive elements.

Group struggles may take still milder forms, such as rivalries in scientific achievements, in artistic productions, or competitions

in athletic sports. Such rivalries are almost always constructive in nature, and they are practicable when the point of view of the contestants is cosmopolitan and the underlying spirit friendly. The problem connected with the relationship of political groups then is not the elimination of all struggle, which would mean complete isolation, but the transformation of the struggle from destructive to constructive forms. And this end should be accomplished not merely by the negative method of suppressing or controlling warfare, but by the positive method of multiplying friendly rivalries.

Group struggle properly includes not merely political units but also all kinds of organized groups. As these groups are not sovereign, but subject to the authority of the government, their struggles do not take the form of war, though they may sometimes be of a destructive nature. The struggle between these groups is similar to that between individuals, both being confined within the larger political unit, and the nature of this contest will be discussed in the next chapter.

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CHAPTER XI

STRUGGLE WITHIN THE GROUP

Nature of the Struggle. The struggle of individuals, or of associations, within the group is necessarily less severe than the struggle of groups with one another. The keynote of group life is coöperation, consequently, if internal struggles and oppositions become too intense, the group is weakened if not disrupted. In fact the state has found it necessary to take out of the hands of individuals the settlement of serious disagreements within the group, and the judgment of anti-social conduct, in order that the organization of the group may not be endangered by continuous internal conflicts.

To understand the nature of struggle within the group it is necessary to distinguish the spirit of the struggle from its degree or intensity. The intensity refers to the effort which must be put forth to obtain the end in view, and this tends to increase with the increase in population. The larger the number of persons entering the competition for livelihood the longer and more careful must be the period of preparation for work, and the more does the actual work itself require energy and application. The spirit of the struggle refers to the methods employed in its promotion. These methods take one or the other of two general forms; they may be combative, or they may be competitive. The struggle is combative when individuals try to gain their ends through infliction of injury upon their opponents. The struggle is competitive when they try to gain their ends through their own superior efforts without in any way interfering with the activities of other individuals. Now while the intensity of the struggle within the group has become keener, its spirit has been moderated and softened. Struggle is gradually changing from the combative to the competitive form. The change, however, has been by no means fully accomplished. Those who assume that society is actually on a competitive basis

are in error, or are deceiving themselves. Very frequently the success of individuals, and the supremacy of corporations, in economic lines is achieved through interference with opponents, rather than through the exercise of superior acumen. Political success also is often attained still by means of subtle and injurious attacks upon opponents, rather than because of the possession of superior ability. Even in the struggle for social and intellectual attainments combativeness has not been entirely eliminated. Much of the effort of the government in regulating industry or politics, which seems to many so dangerously paternalistic, is only its attempts to destroy combative methods and raise the level of individual struggle to a purely competitive plane.

Autogeneric Selection. The extreme effect of struggle within the group is the elimination of individuals, giving rise, as has been said, to autogeneric selection; while milder forms of struggle cause social gradations and division of labor. Autogeneric selection accounts for only a small part of the total number of deaths and the proportion is being steadily reduced. Society does not permit those who have been worsted in the struggle for life to be eliminated entirely. They are assisted in the making of a new start, or if need be are supported by philanthropy. Autogeneric selection is shown in such forms of death as man-slaughter, suicide, and judicial executions. If however the effects of struggle were measured by failures of organizations and institutions instead of by the elimination of individuals, we should be confronted by a long line of wreckage.

Effects of the Struggle. Whether society will gain from struggle within the group will depend upon the form of the struggle involved. The struggle to be favorable must be competitive and it must also be maintained on the basis of equality. Combative struggle is usually detrimental because it results in the survival of qualities adapted only to conflict. But, as co-operation rather than conflict is the principle of social life, the qualities which tend to survive under a system of combat are not those serviceable for group unity and efficiency. Therefore continued combative struggles within the group are not likely to result in favorable social selection, and must be replaced by

competition. Of equal importance to favorable selection is equality of opportunity. Even when the principles of competition are in force, inequality of opportunity may be so great as to counteract all the beneficial results of the contest. Some enter the struggle with nothing but their untrained native abilities, while others, because of wealth, have had every opportunity from training and position. Under such circumstances victory is not to the strong, but to the well armed. Opportunity at the start must be equal to guarantee the proper selection of individual qualities; and competition must govern the spirit of the contestants to ensure the survival of social qualities. The fact should be emphasized however that the principle of equality of opportunity applies only at the start while innate qualities are being tested. After ability is proved opportunity and equipment should be unequal. To those who have should be given much training, and to those who have not should be given little or none. Many who are crying out for equality blind their eyes to this second clause of the principle of social justice. They demand that equality be preserved, if need be, by artificial restraints; but both nature and society protest against such a monstrous injustice.

The result of competition with equal opportunity is to range people in a hierarchy, if not in accordance with actual ability, at least in accordance with the use which society can, or thinks it can, make of them. Such competition is not merely favorable, it is absolutely essential to social progress. The problem of social reorganization is not one of the continuance or of the abolition of competition in society, it is rather a question of the form which competition shall take. Its abolition would be not only detrimental, but it would be unthinkable as well. However, the discussion, it may be well to repeat, refers to competition amongst individuals and not to competition of capital. That presents an entirely different problem. The elimination of competition in capital is possible, and it is even conceivable that competition of material things will have to be modified and tempered, if the competition of individuals is to be free and fair. Under any system of social organization competition of individuals must persist in some form or other and serve as the basis

of selection. It is the normal channel through which the individual seeks to assert himself.

The persistence of competition in a favorable form seems to be dependent in the long run upon the existence of rewards for services and their distribution in proportion to services rendered. Rewards may be either material or social in form, but an adequate reward of some kind must be offered lest individuals lose their stimulus to exertion; and the rewards must be in proportion to social service, or effort will be diverted to useless or fanciful ends. One of the severest criticisms of present day society is that rewards are not so proportioned. So long as social recognition and material rewards come to those who make little exertion, or to those who are a menace to society, or are parasitic upon it, just so long will there be a basis for social discontent.

Social Stratification. The second result of struggle within the group is social grading, or the formation of social strata, a result which is evidently much less extreme than elimination and is accompanied by less shock to the social system. Social gradations may be individual and temporary or they may settle into permanent class distinctions if they become rigid through inheritance. Individual and temporary variations are desirable and beneficial if, as has just been explained, they arise out of a struggle which is both competitive and personal. Permanent social stratification, although a phenomenon of such antiquity as to be regarded by many as natural and inevitable, may nevertheless become an impediment to social progress. Social stratification, in the form of caste or class distinctions, is usually the result of conflict of groups, but it may also arise out of struggle within the group. The underlying forces at work in producing stratification are not very dissimilar whether they arise from one or the other of these causes, though the forces manifest themselves in different ways.

The method of stratification through subjugation is evident. It usually begins with warfare, and when one group is definitely conquered it is subjected to the will of the conquerors either in the form of slavery, or in some less extreme degree of exploitation. Conquerors and conquered may coalesce into a

group in which the conquerors retain their superior position by military means or by monopolizing and manipulating the powers of government and law.

Permanent stratification through internal conflict is brought about by similar steps, though the means employed are more subtle. The first step in the process is the achievement of individual ranking or gradation, resulting from some sort of struggle or competition. The second step, in which individual ranking passes into rigid social stratification, is taken when these individuals of superior rank make their position permanently secure by capturing or retaining various privileges.

The first step in social stratification, that is, the achievement of distinction, should be considered in greater detail because struggle does not always produce gradations. Sometimes it results in elimination and sometimes in division of labor; consequently the different forms of struggle which cause these different results require analysis. The detailed social conditions which are likely to result in division of labor are described in a later section; here it will suffice merely to indicate the broad differences in the form of the struggle. Where the end sought is individual gain and the means employed are also individual, all the contestants will ordinarily employ the same means to attain the end and the result will be either elimination or social gradation. These are the conditions to be found in a foot race which results in gradation. Contestants seek an individual prize or honor and they use the same method in competing for it. If groups compete as units, a gradation of units will result. Next, if the end sought is social, in the sense that it requires united effort, contestants will ordinarily employ different means to attain the common end and the result will be a simple form of division of labor. A baseball game is a contest of groups. Each member of the team strives for the same end, but each contributes to the result in a different way, — that is, by filling a different position. This makes a division of labor group. Lastly, if the end sought is social and the means employed are also social, that is, if groups rather than individuals combine to produce the end, a complex form of division of labor results. This is the form common in economic life, but rare in other

departments of social life, for ordinarily the attitude of groups towards one another is likely to be that of opposition rather than coöperation.

Returning now to the first form of struggle described which produces either elimination or gradation, and analyzing the conditions still farther, it will appear that the competition results in elimination or in gradation according to the nature of the ends sought. If the objective is broad enough to accommodate all contestants, no elimination will be necessary and contestants will tend merely to be ranked according to ability. If the goal is narrow so that few are eligible, superfluous contestants must be rejected, and those who are accepted are likely to be graded according to attainment. For example, if students should strive for intellectual proficiency or for physical culture, all could attain some degree of success, and gradation without elimination would result. If however the number of contestants was large, for instance, for a position on a particular athletic team, some would have to be rejected, for the goal would be limited and could accommodate but few individuals. Competition for office necessarily results in elimination because one candidate only can occupy the position.

In conclusion, therefore, it appears that social stratification, whether produced by struggle of groups or struggle within a group, has its origin in conflict, resulting in superiority and subordination, a relationship next cemented by the use of force, though in some cases the force is so innocuous and indirect that its nature may not be recognized or admitted. The character of the compulsion used will vary according to the basis of class distinctions. Among primitive peoples a distinction is to be found based on sex, and in this case the male sex fortifies its position by the exclusive appropriation of certain occupations, and the monopolization of other privileges, especially that of intimacy with spirits. In the period of barbarism also the privileged class reserved to themselves certain occupations, usually those which carried with them the opportunity for exploit. The possession of land has, in various social stages, been both a mark of superiority and a means of retaining superior position. In modern times, the powers of the state

and of the law have been utilized to preserve class distinctions. Whenever wealth has been the basis of stratification the superior have usually been able to retain special privileges yielding a continuous source of income. In so far as superiority rests on culture, or education, or access to influential associates, the superior stratum has been able to retain its rank because it alone is in a position to acquire the desirable attributes. In the last situation the exercise of any compulsion appears to be lacking, or at least unintentioned, the advantage appearing merely as the natural result of previous attainments. But in this case the position is actually the survival of previous advantages or privileges which social conditions have enabled their possessors to retain. Members of the favored class may finally appear rather as victims of these stratifications than as active agents in preserving them. Reform requires not so much that advantages be denied them, as that these aforesaid advantages be extended to other deserving persons. Not opportunity, but exclusiveness of opportunity, should be abolished.

Division of Labor the Most Desirable Result of Struggle. Division of labor is the mildest, and at the same time the most advantageous, result of individual struggle within the group. In place of the elimination or subordination of inferior individuals, division of labor tends towards the maximum utilization of all kinds of ability. Persons who would be inferior in some occupations have opportunity to show superiority in other lines. Moreover, when there exists diversity in occupations for members of a group, oppositions tend to disappear and the coöperative principle of group life is strengthened. Therefore the system of division of labor combines the greatest amount of opportunity for all with the smallest degree of opposition. In modern industrial societies division of labor is the chief result of the struggle for life, and it forms the basis of modern social organization. Bücher in his *Industrial Revolution* estimates that there are ten thousand modes of activity which may furnish the basis for occupations in the modern industrial world.

Causes of Division of Labor. In primitive times little division of labor existed except that between the sexes. This elementary social cleavage among savage peoples, however,

reveals the conditions under which division of labor in its advanced form finally developed. Division of labor existed within the family in primitive groups because there were several things to be done and some members were better adapted to perform one task than another. The most important occupations were the search for food and the care of the children. Women necessarily cared for the children while men undertook the more arduous work of providing food or of defending the group. The economic activities performed by women had to be adapted to their strength and made supplementary to their task of rearing the children. These two conditions, a number of things to be done and the presence of individuals variously equipped to do them, roughly explains division of labor in advanced as well as in primitive societies, though in complicated societies the things to be done are no longer restricted to the satisfaction of the simplest physical wants, nor is the division of tasks determined only by physical differences. In advanced societies the number of activities pursued depends upon the multiplication of desires and upon the amount of wealth accumulated for the satisfaction of those desires; and the method employed for carrying on these activities depends first on the size of the population and secondly on the degree of differentiation in the population, either through natural endowment or through education. And if our study of the division of labor is limited to a small district, that district must possess a variety in its environment to stimulate variety in pursuits. Assuming a varied environment and a heterogeneous population distributed over a large area of the earth's surface, it may be said that division of labor results from the struggle for existence, when the population is large, when desires are numerous, and when wealth is on the increase.

If an increase in population occurs with no growth of desire or of wealth, individuals continue to follow the same occupations, the struggle becomes more intense, and selection increases. This situation produces social gradations also as well as elimination. If an increase in wealth takes place with no increase in population or in desire, the struggle for life becomes less intense. People either degenerate through idleness or become miserly.

If wants multiply with no change in the other two factors, discontent and unrest are created; but, without an increase in wealth, the new wants cannot be satisfied. Even if new wants were followed by an increase in wealth but by no increase in population, division of labor would be but little advanced. In that case people would satisfy their wants by exchanging their surplus wealth with other peoples and the slight extension of division of labor involved would be possible only because the amount of wealth formerly produced could, by improved methods, be produced by fewer laborers, and therefore through economy of labor the population would be relatively larger compared with the total wealth.

A dense population. These fundamental causes of the division of labor need to be analyzed in greater detail. Of the factors mentioned the growth of population is the most important for it stimulates division of labor both directly and indirectly. It is evident that a large population furnishes the physical basis for division of labor, because a variety of occupations could not be carried on without a numerous population. However, the mere existence of numbers in a given area is not of itself sufficient to stimulate division of labor. They must be united into a single associating group, or individuals will not be able to specialize and exchange their products. Unity may be brought about either through close physical proximity, or through excellent means of communication. But even the best means of communication over wide areas does not compensate for actual density of population, for close physical proximity always facilitates exchange of products. Therefore the grouping of large populations in cities, having good means of communication with one another and with outlying districts, presents the best physical basis for the development of division of labor.

Indirectly also a large population, and especially a growing population, assists division of labor because it stimulates the growth of new wants. New wants usually arise either from changing internal conditions giving rise to new needs, or from contacts between peoples of different modes of life, and both these conditions are likely to follow an increase in population.

As a population grows denser it is likely to produce those changing internal conditions which cause new wants to arise; and it also stimulates expansion and thus multiplies contacts between peoples.

A heterogeneous population. Next to size and density, heterogeneity of population is of importance in perfecting the system of division of labor. A population with a variety of aptitudes will obviously carry on a large variety of occupations with greater facility than a homogeneous population. This diversity may be inborn, or it may be developed by a system of education which accentuates natural differences. In either case individuals will be differentiated to fit occupations and will show proficiency in them. In addition to its function of fitting individuals to occupations, education may be of the kind to stimulate the inventive faculties and hence indirectly produce new occupations, thereby increasing total wealth. Scientific or technical education is most likely to stimulate inventions that will further division of labor; but any system of education which promotes originality and develops individuality is always a powerful influence in introducing new ideas and new products. Although the mental characteristics of the population appear to be the most important factor in furthering inventions, Tarde reasoned that invention is due to the active association of ideas, which results from close contact of peoples; and this theory brings us back again to the factor of a dense population as an aid in stimulating inventions.

Density of population is such a pervasive influence in extending division of labor that it might seem to include other minor causes and stand out as the one necessary determinant of the division of labor. In some instances increasing density of population appears to have ensured the presence of the other necessary conditions, but it would still be a mistake to conclude that division of labor always varies directly with the volume and density of population. Division of labor developed only slightly among the ancient Peruvians, nor is it carried out extensively in countries like China and India. All of these countries have had dense populations but for some reason or other the density failed to stimulate the diversity of desires and the

accumulation of wealth essential to the perfection of the system. These other factors are sometimes stimulated by increasing density of population, but are not necessary adjuncts to it.

In conclusion then it may be said that the causes of division of labor are complicated and include both physical and psychological factors. These two sets of factors are quite likely to develop together, but they will inevitably do so only if the physical environment and the educational opportunities are favorable.

Results of the Division of Labor. *Increases the production of wealth.* The most evident result of the division of labor is that it effects economies in the industrial organization and, therefore, increases the total amount of wealth produced. This result is the one usually analyzed by economists, and therefore is already well understood, so that a brief review here will suffice. Division of labor effects savings in three ways: it economizes labor; it economizes time; it economizes capital. It economizes labor, first, because it furnishes such a multiplicity of occupations from the simplest to the most complex that it permits the utilization of all degrees of ability including both mental and physical characters. It even gives employment to cripples and enables morons to earn a modest livelihood. In doing so it works in opposition to the selective process; and, therefore, it might be argued that to this extent it was disadvantageous. But, as has already been pointed out, society does not permit the harsh results of the struggle for life to proceed to actual elimination, so division of labor is beneficial in permitting some utilization of individuals who might otherwise be wholly dependent. Doubtless this involves possibilities of abuse which would require regulation; but, even so, the possibility of utilizing all grades of labor cannot itself be counted undesirable. Another danger in the universal utilization of labor lies in the liability of an excessive employment of women and young children. But when this occurs, it may be regarded as an abuse, only temporary in its nature, rather than as a necessary accompaniment of the system of the division of labor; and therefore it would not modify the conclusion that the possibility of utilizing all grades of labor should be looked upon as advantageous.

Another economy of labor arises from the possibility of utilizing to the utmost the special abilities of every laborer. Individuals who would be of little value in one line of work might prove to be very expert in other specialized occupations made possible by the division of labor. Furthermore the labor resulting would be not only better in quality but more intensely applied and more willingly given, if workers were employed in the tasks for which they were specially adapted. It is labor of this kind which promotes skill and efficiency and gives the joy to working.

Division of labor economizes time when a laborer continues at one occupation instead of working intermittently at several, or when he performs one process of a task instead of several. Time and energy are always lost in passing frequently from one occupation to another. The preparation for a new task consumes time, and the maximum speed and efficiency is not maintained either at the beginning or at the ending of a given piece of work. It has frequently been pointed out that the farmer loses much time in these ways as compared with the industrial worker. On the other hand variety in tasks affords certain compensations in increased interest and freedom from exhaustion which accompanies continuous application of the attention to uninteresting work. The industrial laborer, working intensively in a narrow line, can maintain a high degree of efficiency only if the hours are short.

Another form of saving mentioned by many authors lies in the shortening of the period of apprenticeship, for the subdivision of occupations into minute processes makes possible the learning of a trade in a short time. It should be noted, however, that this advantage applies only to the narrow subdivisions of the productive process. The broader forms of specialization, such as those connected with the professions, constantly require more instead of less preparation. Extreme division of labor into minute processes, moreover, is the form least advantageous to labor and involves the greatest number of problems. Its advantage is that it gives employment to laborers of small capabilities. When narrow occupations attract laborers having the capacity for more intelligent work the factor of economy of time conflicts with that of economy of labor, and the latter is the more

important here. As economy of time means less education for the laborer, the resulting advantage is doubtful. On the whole, economies of time resulting from division of labor are, of all economies, the least advantageous.

Economy of capital under the system of division of labor does not imply the employment of less capital, but the more continuous use of the capital available. A laborer uses one tool or one machine continuously instead of using several in succession. Of course constant use of a machine wears it out more quickly and therefore calls for more rapid replacement; and this consideration might seem to offset to some extent the advantages to be derived from its continuous use. But if the returns from capital can be obtained just as well in a short time, it is more advantageous to save time than machinery. Some labor is required to keep machinery in condition, whether it is being used or not; and improvements in processes are so rapidly being made that the productive life of a machine is uncertain at best. The continuous utilization of capital would then by itself seem always to be a desirable form of economy; but here again economies of capital and of labor may conflict. The uninterrupted use of capital may cause the exhaustion of labor, and therefore its waste, if too few laborers are employed, or if they are used for periods of too great length.

Division of labor does offer then under many circumstances the opportunity of realizing economies in labor, in time, and in capital; but usually not all of the savings can be realized simultaneously. Inconsistencies in economies are sure to arise and when they do it is to the advantage of society in the long run to consider the welfare of labor; but when profits in industry alone are sought the factor which is most valuable will receive most careful consideration.

The conclusion is that division of labor tends to increase total wealth through its many possible economies, and that the result is ordinarily advantageous; but that the far-reaching social effects of division of labor must be taken into consideration before we can affirm that every increment of wealth means also increase in well-being.

Increases knowledge and invention. Another advantage of

division of labor is that it increases knowledge and improves the arts. Division of labor in occupations is similar to concentration in the individual. By specializing in one narrow line the individual can delve deeper into his subject and knowledge about it is increased much more than it would be if he spread his attention over a wide range of subjects or activities. For example, medical knowledge has been greatly extended, because men have specialized in particular branches. Improvements in industrial methods and processes have also been furthered by division of labor. The assertion has been made, and also denied, that inventions are stimulated through division of labor. While it may be true that comparatively few inventions have been made directly by laborers themselves, because they work on minute processes; the system of division of labor has nevertheless enabled the most ingenious minds to devote themselves exclusively to inventions and improvements and in this way great advance has been made in technical methods. Invention is becoming less and less the product of chance discovery, and coming to be more and more the result of deliberate purpose.

Develops individuality. Another effect of the division of labor is that, in its best form at least, it develops the individual. Inasmuch as the ordinary criticism of the division of labor is that it tends to dwarf the individual, the conditions under which these opposite influences act should be considered. When a field of specialization is broad enough to give full scope to mental activity, it is doubtless stimulating; but when specialization reduces itself to the mere performance of automatic processes, the individual finds no opportunity for self-expression and the result is deadening. Durkheim has made this test the dividing line between normal and abnormal forms of the division of labor. In the first case the specialization means thoroughness and mastery in a particular field; and this is more stimulating to the individual than moderate knowledge over a wider field. The specialist is a more highly developed person than the jack-of-all-trades. Furthermore a longer and superior kind of educational preparation is required for the specialist than for the non-specialist in the same field. The specialist in medicine, for example, must have all the general knowledge of

the ordinary practitioner as a basis, before he can carry out investigations in a particular branch.

The complex form of division of labor is less desirable and in its extreme type is likely to be temporary. When a piece of work is subdivided into mere automatic processes, which call for the exercise of little intelligence, it may be left to the machine. The more extended use of machinery for such work is desirable; but under our present system of production machinery will be used only when it can be obtained more cheaply than human labor. As labor becomes better educated and therefore more valuable, and as capital is more extensively accumulated and therefore cheaper, capital will be substituted for labor to a greater extent in the more dwarfing forms of work. The narrowing influences of division of labor will in this way be reduced, and the broadening effects extended, as the system passes from the transitional stage to a condition of greater perfection.

Gives a new basis for social organization. The next result, and perhaps the most significant of all, of division of labor, is that it produces a new and superior basis for social relations, permitting society to be organized in accordance with the principles of individual interdependence and coöperation. Three forms of social organization have thus far been evolved. The primitive form of society was an arrangement of the clan and the tribe into sections having little interdependence. When the environment no longer furnished sustenance for increased numbers such societies divided without inconvenience, and each part carried on a fairly complete social life by itself. Durkheim has called this form of society the segmentary type.

The next form of social organization to be evolved was based on class distinctions. Such a society was superior to the segmentary type because it could impose unity of organization over large numbers; but the interdependence created was chiefly of classes rather than of individuals, and the coöperation was forced.

The third type of society, based on division of labor, is now in the process of attainment. This type is not the result of exploitation, but is rather the accompaniment of increased wealth and of the larger population made possible by increase

of wealth. Its nature is being realized slowly, because it has to permeate and transform a society already strongly organized on a class system maintained by force. When the division of labor form of organization shall have discarded the shell of class distinctions, a more adequate system of social relations will emerge. Division of labor provides a social organization even more strongly unified than the previous system; and the unity is of a higher order, for it grows out of individual self-interest instead of out of force, or class interest. And when perfected it will finally produce a society admitting of the largest degree of individual development.

Increase in the struggle for life produces very different results under these three systems. Under the segmentary type the struggle for life causes disintegration and conflict of small groups; hence any great social advance is impossible under that system, for the group remains deficient in size and in unity of organization. In the second type of society, increased struggle for life produces antagonisms between classes, which are repressed by force unless perchance a revolution succeeds. The struggle for life under the class system then merely results in greater repression of the individual, making the condition of the masses less and less tolerable. Under the system of division of labor increased struggle for life encourages greater specialization, thereby bringing about stronger social unity, and in normal cases stimulating individual development. The superiority of the last type of society is therefore evident; and, when perfected, it will prove to be well adapted for a new era of progress. Perfection of the system is being slowly evolved through the economic forces at work with little help from statesmen or reformers. The ambitious social architect, instead of dreaming of types of organization far removed from our own, would do better to comprehend the forces already at work and to assist in converting the system of classes into a pure system of division of labor, the type of organization which in any case is evidently destined to succeed the present hybrid form.

An influence towards democracy. The final effect of the division of labor is that it conduces to sentiments of equality and aids in establishing democracy. Division of labor does not

by itself ensure equality; but it contains within itself some of the elements of equality and presents favorable conditions for the development of other elements. Absolute equality involves of course the problem of inherited ability; but that difficult side of the subject may be ignored here and only the social conditions favorable to it considered. From the social point of view equality demands full opportunity for developing one's faculties and freedom in the pursuit of an occupation adapted to one's capacities.

Progress in the realization of the last condition, and to a smaller extent of the first, is made under the system of the division of labor, because of the fact that it provides such a large and varied assortment of occupations. Diversity of occupations and freedom in their selection contribute to democracy in two ways. First, they tend to distribute workers in occupations in accordance with their mental capacities rather than through artificial distinctions of any kind. This condition, though imperfectly attained as yet, is still much nearer realization than it has been under any previous social system. Under the class system occupations are graded according to status; and their position, whether of honor or of dishonor, is derived not from intrinsic merit but from the social position of the individuals performing them. And inasmuch as it is difficult or impossible to pass from one class to another, individuals necessarily follow the occupations belonging to their class; and therefore the social organization itself tends to strengthen original feelings of inequality. But as class distinctions become weakened and division of labor is perfected individuals are able to enter more freely occupations suited to their capacities; and therefore occupations come to be judged on the basis of their social utility and on the grade of ability requisite for success in them. Thus division of labor helps to break up artificial gradations and to distribute population according to capacity. Of course differences in capacity may remain considerable; but the likelihood is that they will be reduced with increasing equality of opportunity. As a basis for social organization at any rate, individual ability is to be preferred to rigid artificial distinctions in any form.

A second influence of diversity of occupation is a psychological one, which affects sentiments or points of view, rather than actual position. Division of labor does not promote equality in the sense of similarity; it tends rather to produce heterogeneity; but heterogeneity favors sentiments of equality rather than of inequality in a population. Under a complete system of division of labor direct comparisons between occupations or between individuals in them are difficult. When individuals are doing different things, no basis for comparison is present; when they are doing the same things, inherent differences are easily detected. It is much more difficult to make a comparison between a lawyer and a doctor than it is to compare two lawyers. When individuals specialize and become masters in their several lines each has his superior side; and the general tendency is to admit a rough equality sufficient for the purposes of a democratic society, rather than to attempt to grade different kinds of superiority. Within an occupation gradations and inequalities will necessarily occur, but they again will conform to actual differences in ability rather than to artificial distinctions.

Division of labor therefore tends in the first place to distribute individuals in occupations according to ability, and, secondly, it helps to create a sentiment of equality by rendering difficult unfavorable comparisons. Complete democracy, however, requires also free opportunity of development for all; and, while this condition is not necessarily involved in the system of division of labor, it is only under that system that opportunity can be open to all. Under a class system in which society is held together by force, the lower classes are necessarily repressed. But in a society cemented by mutual interdependence, as occupations requiring diversity of talents multiply, it comes to be necessary and desirable that everyone should be given the opportunity to develop his highest capacities. Thus the system of division of labor contains some of the elements of democracy and tends to stimulate others not necessarily included within it. It is only on the system of division of labor that true democracy can be established.

Division of Labor and Social Progress. Returning for a moment now to the outline of the three processes of social

progress given in Chapter 5, — integration, variation, and selection, — it will be evident that social progress, depending as it does upon the successful functioning of these three processes, will make a surer and swifter gain under division of labor than it ever could under any previous system. Division of labor promotes integration, by making each individual dependent upon others through a bond of self-interest rather than through one of force. It produces wider variation because individuals through specialization develop the maximum of heterogeneity. Therefore the system presents unity with diversity to a degree hitherto unknown in history. In the field of selection, while the extreme form of elimination through combat tends to disappear, that form which consists in sifting individuals and in developing and utilizing them in ways for which they are best fitted, is more likely to be perfected. The enormous progress which western civilization has made during the last century is neither a chance phenomenon nor a temporary one, but has been made possible by the gradual development of the system of division of labor, which brings to a very high degree of perfection the three processes of integration, variation, and selection, essential to social progress.

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CHAPTER XII

THE UTILIZATION OF MEN

Progress Depends upon the Utilization of Energy. Progress along economic lines, that is, adaptation to the environment, requires energy; and the more energy that can be controlled the greater will be the progress. The amount of energy in a human being, or even the amount to be obtained from such coöperation of individuals as occurs in a primitive group, though sufficient to sustain life, will not ensure much progress because it is inadequate for the achievement of a surplus. The great problem of production has been how most effectively to supplement individual effort through the control and utilization of motor power. The first source of power to be utilized was other human beings, because this form of energy was perfectly well understood and could be directed by the mere exercise of brute force. The next form of energy utilized was that of lower animals, which required admixture of sagacity with force. And the last form was the utilization of inorganic nature, which demanded knowledge and ingenuity, but in which brute force was of no avail. The reason for this sequence is that man has had to use the kind of force suitable to his particular stage of enlightenment. When the intelligence of the master is low, he can utilize only intelligent agents. As his intelligence increases he begins to understand and utilize less intelligent or inanimate instruments. The change in the force employed not only increases the amount of energy available but permits its utilization with a smaller amount of waste. At the same time the method of directing human energy has been made more effective.

Forms of Exploitation Vary With Economic Conditions. The utilization of human beings has two aspects; first, the form or method of utilization, and, second, the degree of subordination to which the individual is subjected. The

method of utilization in its crudest form necessitated the death of the individual, because captives were originally used for food or for sacrifice. When the economic system reached a stage permitting the profitable employment of additional human beings, slavery was established; in a later stage slavery was displaced by serfdom, and serfdom gradually changed into the wage system.

The introduction of the slave system was favored by two sets of conditions: first, a form of economy or method of production suitable to the employment of slaves; and, second, the establishment of the family as a distinct unit, so that someone would feel responsible for the care and the enforced labor of the slave. As early as the hunting and the pastoral stages of existence, a few slaves could be utilized for personal service or for tending cattle; but it was the agricultural system which first gave opportunity for the utilization of slaves in large numbers. When an agricultural economy was combined with a militant organization of society, the contributions of masters and slaves were supplementary, and the militant organization furnished also the coercive power needed for the complete subjection of the slave class. With this combination slavery reached its highest degree of development and utility.

The stimulus to slavery afforded by separate family life came chiefly through the introduction of private property and the consequent interest taken by the head of the family in the ownership of slaves and of the wealth which they produced. A factor of minor importance was the satisfaction which any individual feels, especially in the early stages of his development, in dominating other individuals. The enslavement of men and the domestication of animals have a similar psychological cause. The desire to subordinate other individuals is a natural outcome of the early and imperfect development of the personality known as excessive egoism. And the desire to domineer over others, or to exploit them, declines with the growing recognition of the rights of others and the increase in the sentiment of equality. While individualism, an agricultural economy, and a militant organization were the new conditions most favorable to the establishment of slavery, other

considerations determined its profitableness and therefore its duration in different societies.

As a system of production slavery is extremely wasteful, for the slave, having no personal interest in the product, performs as little labor as possible; and the work which is accomplished requires a maximum of oversight. Therefore slavery is possible only when there is plenty of rich land so that a fair crop may be grown with indifferent labor, or when the overseers drive the laborers so hard as to shorten considerably their period of productivity. The latter method is employed if slaves are so abundant that they can easily be replaced when worn out. Slavery, therefore, proves unprofitable, either when the land becomes so exhausted that it requires personal care and interest for profitable cultivation, or when slaves become so scarce, and therefore so valuable, that their living and working conditions must be greatly improved. When these changes occur it is found more profitable to substitute a system of rewards for one of compulsion, and for this reason serfdom gradually replaced slavery. Serfdom was a temporary expedient; but it was valuable in that it assured the cultivation of the land, and it provided a stimulus to labor by permitting the serf to keep the residue after specific payments had been made. With the growth of cities and the development of industry and commerce, serfdom was no longer adequate. The industrial system requires mobility of labor and freedom of contract. It prefers temporary, rather than life-long, conditions of employment; and it demands the right of differentiating efficient from inefficient labor. The rise of the money régime facilitated the introduction of the wage system by permitting payment for a particular amount of work, and such payment freed the employer from all responsibility for the care of the laborer. Therefore for the development of varied industries the wage system is the most economical and the most manageable, the economic necessity of the laborers ensuring competition for employment and therefore selection according to industrial needs.

Degree of Subordination Depends upon Social as Well as Economic Conditions. If we turn now to the question of the degree of subordination, or the actual condition of the

exploited population, it will appear that their condition does not vary directly with the form of exploitation but is affected by other influences as well. It is ordinarily assumed that each succeeding system necessarily ushers in better conditions for labor, but this is not uniformly true. After the industrial revolution the condition of wage labor was more grievous than the lot of the better class of slaves. The fact is that the wage system provided greater possibilities for development, but did not automatically introduce better conditions. Under all methods of utilization, the improvement of the condition of the exploited has depended upon a relative scarcity of laborers available on the one hand, and upon the growth of humanitarian sentiments on the other hand; that is, upon an economic cause and a psychological cause. The improvement arising from the scarcity of labor and its consequent increase in value has been a cause rather than a result of the change in the economic system.

That the growth of humanitarian sentiments has been a strong supplementary influence in improving the conditions of labor is shown by the fact that the improvement was greatest in those cases where the exploited came into closest contact with their superiors, and where public opinion could be most easily aroused. The improvement in the condition of slaves, as well as in that of wage earners after the industrial revolution, was brought about through a series of legislative acts rather than through the operation of economic forces alone. It seems evident that the condition of the exploited does not improve through the exclusive operation of economic forces, although changed economic conditions may have provided the original impulse. Increased sympathy has hastened and supported the improvement, if it has not originated it.

At any given time the degree of subordination of the exploited is the result both of the development of humanitarian sentiments and of the form of production; and of these forces, the former seems to determine more immediately the actual condition of the exploited, while the latter sets broad limits to the possibilities of exploitation. Exploitation is possible under the wage system, as it is under other systems of production; and

it will disappear only when all classes have freedom of opportunity in the preparation for and choice of occupations, and when their labor will ensure them a livelihood consistent with the standards of the time. When labor is greatly restricted from any cause, such as scarcity of funds, or inability to migrate, or to choose a suitable occupation, the opportunity for exploitation is present; and sympathy between economic classes is not so widespread that employers will refrain from taking advantage of the opportunity whenever it appears. The attainment of this economic freedom will mark the final dissolution of the class system and the triumph of the system of division of labor.

Results of Exploitation on Society as a Whole. *Produces classes.* While the effects of the utilization of men vary with the form and degree of subjection, many of its results are more or less in evidence in all forms of subjection. The most obvious effect of exploitation is that it produces classes. In early stages of civilization the class system had its advantages, for it permitted the formation of large societies and at the same time supplied moderately strong social cohesion. It has even been maintained that slavery enforced discipline and habits of industry; that without coercion habits of continuous labor would never have been acquired. The importance of this result, however, seems to have been greatly overestimated. It is quite true that slaves worked much harder than they would have done had they been free to direct their own labor to the satisfaction of their own wants; and through compulsion they may have acquired some habits of industry, though the student is somewhat disappointed when he seeks verification of such a theory among the negroes of the South. Indeed it is impossible to believe that, among the great mass of mankind, ability to labor can be traced back to the early discipline of slavery. Slavery has been much more common in hot countries than in cold, and according to this theory we should expect to find labor more intense and continuous where the slave régime had been most extensive; but the reverse is the case. As a matter of fact, although labor may be forced by external means, willingness to work may also come from an inner motive,—the satisfaction of one's wants,—and when the environment is unfriendly so that wants are

satisfied with difficulty, the ability to labor may be acquired without external compulsion.

The system of forcing one class in society to do the necessary work for all did result in brilliant, if not enduring, civilizations. Such a system doubtless affords opportunity for social development, but it does not ensure it. It frees a whole class from the necessity of satisfying their material wants, thus permitting them, though not compelling them, to develop cultural activities. History shows that under these circumstances a few respond to the opportunities, while the many do not. Therefore for the purpose of producing a high civilization such a system is a wasteful one and not nearly so effective as the system of division of labor, where all must follow their chosen occupations. On the whole the gentle stimulus of necessity acts in a beneficial way on the majority of mankind in causing them to select those callings for which they show promise of success and to continue diligently in their chosen pursuits.

The conclusion here then, like that in the previous chapter, is that, while the class system performed a useful service in early stages of progress, under present conditions it is not only an inferior basis of social organization but its persistence acts as an obstacle to the perfection of social relations.

Destroys the honor of labor. One of the objectionable results of the exploitation of men is that it tends to destroy the honor of labor, according to the principle that honor in labor results, not from the character of the work, but from the character of the persons who customarily perform it. If a particular kind of work is habitually performed by an inferior class, such as slaves, that work comes to be despised by all higher classes. The reason for this is that all things which are intimately and exclusively connected with a class become a part of it; therefore tasks performed by inferiors must be avoided by superiors if the social line of demarcation between classes is to remain distinct. This attitude has had an important effect upon labor, because it has tended to destroy the dignity of all kinds of work performed by slaves or inferiors. In the highly developed Greek civilization, where most of the necessary tasks were performed by slaves, Plato naively maintained that philosophy was the only

really honorable pursuit. In mediaeval times, in those societies having an inherited nobility, trade was held in contempt, warfare and religion furnishing the occupations most highly esteemed. After that great social upheaval known as the French Revolution, the occupations of the former nobility shrank in popular esteem, while those of the industrial class, because of its growing prosperity, took on new dignity. The same phenomenon appears in a curious way today in our own country in the labor of immigrants, whose social standing appears to be graded roughly according to length of residence here. In districts where immigrants form no considerable part of the population, physical labor, both skilled and unskilled, is performed by native Americans without a thought as to whether it is honorable or not. In districts where immigrants became numerous enough to appropriate gradually the unskilled occupations, these came to be regarded as inferior work by the natives. When other nationalities gradually replaced some of the earlier immigrants, a rough distinction again arose in the relative dignity of different kinds of unskilled labor corresponding to the fancied differences in social position of the different nationalities employed in them.

The social status of the worker is not, however, the only standard for estimating the desirability of different occupations. Even if all social prejudice were removed, not all occupations would be held in equal esteem. Some kinds of work are in themselves more useful than others socially, and some kinds have a more educative effect on the individual. It would be desirable if each form of labor were judged on the basis of its worth to society rather than according to external considerations resulting from artificial class distinctions.

Interferes with free association. Another result of class distinctions is its limitation of the range and intensity of association. The stimulus to social progress arising out of a wide range of association on a rough basis of equality is generally understood. If sharp class distinctions exist, association between classes is either greatly restricted or it is too constrained to produce the best social results. When association is among unequals the sentiments of authority and submission predominate, and neither party is in an attitude to profit greatly by the rela-

tionship. Any intimate association is likely to be limited to members of a class. And this is objectionable for two reasons: first, because the size of a class in any particular district is likely to be small; and, secondly, because members of the same class are similarly educated, and have the same ideals and prejudices; and association limited to similar individuals tends to strengthen pre-existing beliefs and confirm class prejudices, instead of providing broader ideals and more tolerant views. Under the system of division of labor individuals with different kinds of training and diverse points of view associate on terms of equality, and the contacts resulting are more stimulating.

Causes class conflicts. Finally, social subordinations tend to retard the growth of sympathy and to provoke class conflicts. The existence of superior and inferior classes, whether they rest upon birth, or conquest, or property, fosters a sense of a superiority determined by other reasons than those of individual merit. This feeling is intensified by the absence of intimate association already noted in the preceding section. Social isolation engenders suspicion. The whole class relation promotes consciousness of dissimilarity of character and ideals. If the belief that people are fundamentally unlike becomes deeply rooted, and if there is little genuine acquaintance to dispel this illusion, sympathy and friendly feelings have little encouragement to grow.

However, it must not be assumed that class antagonisms result entirely from lack of acquaintance and sympathy, and that they are wholly imaginary. The economic interests in different classes are actually opposed to the extent that exploitation exists. Therefore class oppositions usually have a real as well as a fancied basis; and, while they may remain latent for a time, the danger of open conflict is always present. Such a condition is a continual menace to a group. Opposition is most dangerous when society is divided into two sharply contrasted classes, and is least dangerous when there is continuous gradation from the highest to the lowest class. Then the middle class serves to bridge the chasm between the rich and the poor; and the lowest class does not feel so keenly its inferior position, for ordinary distinctions are not entirely rigid, considerable opportunity existing for improvement in social status.

If society is divided into two classes only, differences of opinion on all subjects are likely to follow a horizontal line of cleavage. If there are more classes, and particularly if the classes are large, vertical divisions are more common and society will divide differently on different questions, thus relieving the intensity of the antagonism between economic classes. Oppositions in a two-class society may become so intense as to threaten its existence. For instance the socialistic appeal for the laborers of all countries to unite would imply a dangerous social cleavage, putting class interests ahead of group interests. But, fortunately, experience in the late war seemed to indicate that group loyalty was actually stronger than class loyalty. That opposition between groups should decline and be replaced by a greater amount of friendly coöperation is obviously enough in accord with the needs of the time and should be encouraged; but it should not be accomplished by increasing class conflict so as to threaten the integrity of any one group.

The evil effects of class distinctions are much more evident now than they were in earlier stages of civilization. When societies were small and sympathy was confined to the members of a group, conquests of one group by another were inevitable; and exploitation of the conquered was a great advance over extermination. The gain consisted, not so much in improvement in the condition of individual captives, as in the new type of social organization which grew out of it. Compared with the tribal system of society the class system offered great possibilities of advance, though, compared with the perfected system of division of labor, it is a cumbersome and wasteful system.

Results of Exploitation upon Classes Themselves. The results of the economic utilization of men thus far given apply to societies as a whole. In addition, certain specific effects on the different classes in society remain to be considered. First, however, it may be well to give a more exact characterization of classes as they exist in advanced industrial countries so that the term classes will not be misinterpreted. Society may be divided into many strata or layers; but, for the present purpose, it will suffice to distinguish three main classes. The highest class consists of all those persons who can maintain their high

standards of living with incomes from accumulated wealth. The middle class consists of those who depend upon their labor to maintain their standards of living, but who have free choice of occupation. And the lowest class is made up of those who depend upon their labor for their living, but who have not free choice of occupation. According to this division the middle class presents the normal condition in society and is the only one consistent with the ideal of democracy. Both the others are survivals of the system of exploitation and are out of harmony with the organization and ideals of a society based on division of labor.

Dangers of a leisure class. Members of the highest class in society, being removed from the immediate struggle for life, do not feel the incentives for activity which actuate other classes, nor do they always feel the responsibilities pertaining to their position. The results are unfortunate. Persons who are freed from the necessity for work are likely to devote their time to the pursuit of pleasure. And if the pursuit of pleasure for its own sake is carried to excess, it involves a dissipation of energy which may mean little more than a social waste of force, but which may extend even to individual and social degeneracy. Now conduct which is either frivolous or vicious is much more serious in the highest class than in other classes, because an economic upper class is often regarded as a socially superior class, and its acts are therefore much more liable to imitation than those of an inferior class.

In addition to the possibility of individual demoralization in an idle upper class, there is likely to be dissipation of wealth. The wealth of such a class, being usually inherited, is not valued so intelligently as earned wealth, and therefore may be easily wasted, or at least employed to only a small degree in the public service. The waste or misuse of wealth in modern times is chiefly of income. Sources of income and methods of investment now are of such a nature that loss of capital itself has come to be less common than was formerly the case. Dissipation then, both of individual energy and of wealth, is the danger from a leisure class. The fact that occasional members of the upper class possess a strong sense of responsibility and devote

both their time and their wealth to social service does not offer a sufficient justification for the existence of a leisure class. The decisive point is that the majority do not feel their responsibility; hence there is much greater waste of wealth and of energy than would be the case if all were obliged to engage in some useful occupation instead of inheriting from their ancestors an unprofitable leisure. Under any social system a highest class or stratum in society is bound to exist; but the advantage would be much greater if this class corresponded to actual personal ability and achievement instead of being determined by the test of inheritance of wealth.

Evils of poverty. Evils resulting from the existence of the lowest class in society are even more serious than those due to the highest class. As members of the lowest class have not free choice of occupations, they overcrowd the unskilled employments and thereby reduce wages, producing poverty and dependence. Now poverty is a social menace, not merely because of the dangerously low standards of living which result, but also because such a large proportion of laborers are unable to develop to their highest efficiency and render society their maximum service. Thus poverty causes a loss to society of much potential energy and also generates social ills, which too often must be classed as contagious. For the present purpose the point is sufficiently illustrated by the fact that social statistics, such as those relating to births, deaths, drunkenness, and crime, vary widely between the poorest and the wealthiest classes.

Psychological results. In addition to the unfortunate physical effects of class divisions, undesirable psychological traits have developed in both the lowest and highest classes. The subordination and dependence of the lowest class have engendered in them an attitude of subservience, inconsistent with that independent manhood essential to a true democracy. On the other hand, the wealthy develop an attitude of self-importance not necessarily warranted by personal merit, but which is rather a reaction from superior external surroundings. This attitude may persist as self-satisfaction and self-sufficiency, or it may become exaggerated into arrogance inconsistent with law and order, or into contempt for the propertyless which increases

class hatred. It is not unnatural that mental attributes should correspond to rank and external surroundings, though it would be preferable to have them correspond to personal merit. Mental attitudes have a strong reactionary effect on character. Neither arrogance nor servility are democratic qualities, but self-confidence of a reasonable degree, or even moderate humility, are tolerable if they represent character. When real achievement determines social position mental attitudes will represent normal individual differences and they will be neither extreme nor antagonistic.

Just as an uppermost stratum in society will develop under any circumstances, so will there be formed a lowest stratum; and here again social welfare demands that the lowest stratum, like the highest, shall be based upon individual qualities. This cannot be under the restrictions imposed by poverty. It will be possible only when larger opportunities permit a more natural differentiation of the population. That the members of the lowest class should inherit their social position is no more desirable than that those in the highest class should inherit theirs, for such inheritance serves to perpetuate and even to exaggerate existing differences. The lowest class, by some means or other, should be made to feel a greater incentive than any other class for improving its condition. It seems now to show the least concern.

Present Distribution of Classes. If a curve should be drawn representing present day society according to incomes, the figure would resemble roughly an inverted top with a very long apex. Under an ideal system of wealth distribution it would conform to the bell-shaped curve of normal variation. The figure representing the present distribution of population should be altered in two respects to conform to the ideal. The points of the curve representing the extremes of wealth and poverty are too far apart and should be compressed, and the bulge in the curve representing the largest number of incomes is too low, — that is, social well-being requires a larger income for the mean of the population.

The Elimination of Classes. The movement for greater equality in society and for the elimination of artificial class

distinctions, involves the whole labor problem and is without doubt the most important issue of the time. A brief consideration of the methods of solving this problem will be offered here even at the risk of exceeding the limits of theoretical sociology.

Any positive action taken by society should not be in the nature of arbitrary measures to reduce class distinctions, but should merely supplement or assist the natural forces already working towards equality. It has previously been pointed out that improvement in the condition of the lowest class has in the past resulted from a relative decrease in the numbers of the exploited, combined with a growing sentiment of humanity; and it is possible that over a long period of time these forces by themselves would cause improvement in the condition of unskilled labor without the need of instituting any definite measures of reform, although the change would be slow and uncertain.

The proportionate numbers of the lowest class should be lessened. Improvement in the condition of the lowest class could be accelerated by various measures. The most obvious would be to decrease the relative numbers of the unskilled. As Professor Carver has so clearly pointed out, the factor in production which is relatively scarce will be most highly paid; therefore, if it is desired to increase the reward of labor, the labor factor should be made scarcer compared to land and capital. In the United States this end may be gained more easily than in some of the older countries owing to the fact that our labor supply comes from abroad as well as from the natural increase in the population. A restriction in the rate of immigration would therefore reduce the proportion of unskilled laborers and increase the value of their services. A similar result would be obtained by more stringent regulations with regard to child labor and, in some instances, with regard to the labor of women. It would also be advantageous to the lowest grade of laborers in the long run if the school age were gradually raised. Such a measure would not only lessen the competition for positions, but would increase the intelligence and productive powers of the young when they were ready for employment. And finally, every measure restricting the numbers of the defective and delinquent classes would result in lightening the burdens of

the unskilled laboring classes. Charles Booth in his study of labor in London brought out the fact that classes A and B, the semi-criminal and casual laborers, were merely a drag on the classes above them, and their complete elimination would be a relief to the poorest class of laborers.

Their efficiency should be raised. A reduction in the numbers of unskilled laborers, however, is not by itself sufficient, for it would probably restrict production. To be effective other measures would have to be instituted to make the change advantageous, not merely to the lowest grade of laborers, but also to society as a whole, for reforms which aim to improve the condition of one class at the expense of the rest of society are likely to be ephemeral, and may even intensify class antagonisms. If the reforms prove to be beneficial to society as a whole, or at least if they are not detrimental to other classes than the one in question, they may be continuous; and social oppositions may decline at the same time. A decrease in the proportion of unskilled laborers should therefore be accompanied by an increase in productive power; that is, the increase in the value of labor should be attained not merely through greater scarcity but also through increased productivity, if the permanent interests of industry and of society are to be considered. This second aim can be accomplished through educational measures of the broadest description, including not merely the channel of public school education but all forms of social service and social influence which may help to raise standards of living, increase ambition and self-reliance, and improve the morale of unskilled labor.

Capital should be increased. These measures if put into operation simultaneously would tend to increase efficiency of labor at the same time that the numbers in the laboring class were relatively decreasing. Thus the total productive force of society would probably not be lessened, though it would be altered and might become therefore a restriction on industry. To obviate this difficulty the above reforms should be accompanied by still another movement,—that is, the increase and cheapening of capital, so that capital could be substituted for labor in the lowest paid occupations as labor became scarcer and dearer. If capital were used in place of some of the least

skilled forms of labor, where the processes were purely automatic, machinery would help to raise labor to a higher level instead of lowering it through direct competition, provided the increased education of laborers enabled them to perform the higher grades of work. The necessary increase of capital should be obtained through the discouragement of luxurious expenditure on the part of the rich and the transfer of the wealth saved to productive purposes.

These three changes, the decrease in the number of laborers, the improvement in their productive capacity, and the increase of capital, if carried on at the same time, would ameliorate greatly the conditions of the lowest class of laborers, would not cripple industry, and would not injure the wider social interests. It is not maintained that such a comprehensive reform would not inconvenience industry, for all changes, even improvements, are disturbances even though they prove temporary ones; but it would not seriously retard industry, because the changes would necessarily be slow, giving industry ample time for readjustments.

It is a cardinal principle of some schools of reformers that any improvement in the condition of the lowest class can be effected only by means of an entire reorganization of the industrial system, and such reformers direct their efforts towards that end as an immediate objective. If we draw our conclusions, however, from the past history of the exploited classes, it is not so certain that improvement in the condition of labor has always been the result of the reorganization of the economic system. It has in fact more often proved to be the cause. And it is probable that in the future also any material change in the organization of industry will occur as a consequence of the improved condition of labor, rather than as a prerequisite to it. Such a reorganization will be the part of a necessary readjustment to the changed conditions made by the superior position and intelligence of labor.

Special privilege should be abolished. The task of dislodging the highest class from its position of advantage is easier in some ways and more difficult in other ways, than that of elevating the position of the lowest class. The measures themselves are simpler and rather more easily executed. But, whereas generally the poorer classes will coöperate cordially in the work of their own

advancement, it is only to be expected that the rich will strongly oppose all measures which threaten their dominant position. As the great majority of the leisure class have obtained their positions through monopoly, or some other form of special privilege, it is evident that the levelling process should begin with the abolition of all forms of special privilege. The measures required for this reform may not be so easy of execution at the start, for not all forms of special privilege are evident on the surface. But it does seem clear that the preservation of a democracy requires not merely freedom in the preparation for work but absolute equality in the conditions under which industry is carried on.

If special privilege however could be withdrawn entirely, it would affect only the future and would not touch those who have already acquired their wealth. They could probably be controlled sufficiently for the needs of society by the use of strongly progressive income and inheritance taxes, possibly supplemented by consumption taxes; for, as has just been pointed out, the checking of luxurious expenditure is desirable so that the wealth saved may be used to increase capital for the production of necessities. Anything in the nature of a violent revolution, or the confiscation of wealth by any means except through the use of the regular machinery of taxation, would probably be unnecessary as well as undesirable.

Conclusion. Such measures as those here outlined would improve the economic conditions of the lowest class, and would raise the average of their intelligence and productivity. It would also eliminate or alter the most objectionable forms of employment by substituting more capital for labor in industry. In addition it would lessen the numbers of the idle and parasitic and would therefore increase the total productive force of society, and more especially that factor which directs industry and gives employment to labor. But above all, society as a whole would gain because the more equal distribution of wealth would increase well-being and the sum total of human happiness. And society would also profit by the substitution of the perfected form of the division of labor for the class system which arouses antagonisms and reduces human efficiency. And finally it may be added that, by means of the methods outlined, these reforms

could be accomplished by gradual steps without recourse to revolutionary means which would disrupt society and lead to severe social reactions.

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CHAPTER XIII

THE STATE

The second manifestation of the desire for self-preservation is to be found in the institution of the state. In primitive times conditions of food supply and the need of defence were the chief factors in determining aggregations of populations. In ethnic groups blood relationship formed the basis of organization, but environmental conditions determined the size of the group.

The Nature of the State. Professor Ashley has defined the state as "a body of people occupying a fairly definite territory with an organized government, who are in no essential subject to any outside power." But this, and other definitions by political scientists, lay chief stress on the fact of sovereignty. From the social point of view it will suffice to define the state as the supreme organization of all the individuals in a given area to promote the general welfare by united action. The fundamental qualities of a state appear in the inclusiveness of its organization, and in the superiority of its authority over all individuals and other organizations, rather than in the nature of its activities. Hence a definition of a state cannot set limits to the latter. Some states engage in few activities, others in many. A political group may embark in entirely new enterprises, and those enterprises may be successful or unsuccessful; but the fact of undertaking them would not affect its character as a state.

The Range of State Activities. The most diverse views are held concerning the proper activities of states. The more conservative theorists would limit state activities to the protection of its citizens and of its territory from the attacks of foreign powers, and to the maintenance of order within; while the more radical look to the state for the maintenance or regulation of all the most important phases of economic and social life. No general principle can be formulated concerning the proper

limits to state activity, for states differ greatly in their ability to carry on enterprises and regulate social relations. If we hold that the state should undertake everything which it can do better than private individuals; or if we put it negatively and say that individuals should be allowed to carry on all enterprises which they can perform better than the state, we are still far from a solution of the problem, for each state must through experimentation ascertain which enterprises it can carry on profitably and which it may most advantageously leave to individual initiative. Two conditions should however be taken into account whenever the undertaking of a new enterprise by the state is contemplated: first, the inclination of private individuals to carry on the enterprise in the interests of the people as a whole; and, secondly, the ability of the state to carry on the enterprise honestly and efficiently. If private enterprise serves the public interest adequately, there is little need for the state to appropriate the industry. And, if a state is wasteful and inefficient in its administration, caution should be shown in extending its activities, even though the people are not well served by private enterprise. But if the state is generally efficient, and private enterprise is arrogant and grasping, the extension of state activity may be hastened.

Individuals, of course, carry on economic enterprises for their own profit, and private gain may or may not coincide with the public welfare. Usually maximum profits will conflict with the interests of society in proportion to the degree of dependence of individuals, either upon individual producers, or upon the products themselves. If dependence is considerable producers can enjoy large profits with little regard for the interests of the consumers. If dependence is slight producers must cater to the needs of consumers in order to make sales. An example of dependence on the product is found in the case of a food famine where the urgent needs of the population afford the opportunity for large profits which are at variance with the interests of society, for high prices then coincide with economic depression and low incomes. Ordinary monopolies afford examples of dependence upon individual producers. When the monopoly covers a necessity, the dependence is twofold, being both upon an indi-

vidual and upon a product; and the consumer is helpless. If the article monopolized is a luxury, or if it has an available substitute, the dependence of the consumer is less extreme and the producer is usually more solicitous of his welfare. A monopoly in diamonds is less serious socially than a corner in wheat. On the other hand, if commodities are plentiful and marketed under competitive conditions, profits will be small because purchasers are practically independent of any particular dealer. Under modern conditions of production dependence tends to increase as population grows and division of labor is perfected; and, moreover, as specialization progresses, combinations and monopolies are more easily formed. Hence it seems probable that individual enterprise is destined to become increasingly at variance with social welfare; and the need for state regulation, or state ownership, will therefore increase as social life becomes more intense.

Although private industry may serve the public interest less effectively as population grows denser, it is not necessarily true, on the other hand, that public control becomes increasingly efficient. Successful operation of industry by the state may encounter two sets of difficulties: first, the personal problem of attracting men of probity and ability into the public service; and, second, the administrative problem of conducting large and complicated industries efficiently. Evidently the means of overcoming these obstacles will vary greatly under different circumstances, and no simple set of principles can be given for their solution. It seems certain however that under present conditions the moral factor, the sense of duty, cannot be relied upon to attract a sufficient number of first class men into the public service; and adequate personal reward must be offered equivalent to that which may be obtained in private enterprise. Perhaps greater equalization of the returns between public service and private industry may be brought about by limiting gradually the range of private profits; but the direct reward for efficient public service must also be increased. The rewards need not necessarily be wholly material, but where incomes are small they must be supplemented by honors and social position.

The difficulty of administering large industries satisfactorily

will continue, and even increase, as public needs become more varied and exacting. While the administration of some kinds of industries may become simplified, as social service rather than maximum profit comes to be the end in view, simplification for all cannot be expected. It must not be forgotten that private industry is often more efficient than public, because its profits vary directly with efficiency of administration. In the long run the solution of the administrative problem depends upon the attraction, by one means or another, of capable citizens into the service of the state. Public service should in time be made an honorable profession requiring careful and specialized training. This sort of training is coming to be more and more essential if the modern state is to be as competent as public welfare demands.

Aside from the question of the ability of a state to carry on an industry, a factor of importance is the attitude of the public towards state ownership. If the operation of an industry by the state is to be effective, there must be a general sentiment in favor of such operation and cordial coöperation on the part of all citizens to ensure its success. If private individuals regard state activity as an encroachment on their rights, rather than as a service, its success will be doubtful. The attitude of the public is determined partly by immediate needs and partly by past training and experience. A people may accustom themselves to supervision and authority, so that submission becomes a natural trait. Then extension of state activity encounters little resistance. If, however, a people are accustomed to a régime of individualism, so that independence and initiative have become dominant traits, they will oppose the extension of state activities; and success will be doubtful. On the whole the extent, as well as the success, of state activity will depend both upon the efficiency of state organization and upon the degree of socialization of the people; and both may be expected to grow with increasing density of population and greater intensity of social life.

The Survival of States: External Dangers. Turning now to the problems of political organization, the first to be considered concerns conditions which favor the survival and devel-

opment of states; and the second concerns the factors and forces which stimulate the evolution of states. Dangers from within and without threaten the existence of states, and survival and progress depend upon overcoming perils from both sources. External dangers, being more evident, are therefore more likely to be recognized and resisted. The chief menace of this sort is that of conquest or absorption by another state.

One of the greatest guarantees of self-preservation is size. The conditions of evolution have favored larger and larger political units. States which originally possessed an advantage have by conquest or by peaceful federation grown into large and powerful organizations. This expansion is likely to continue at least until it finds a natural limit in physical boundaries. Small states find it impossible to resist this process of integration; and, unless other forces compensate for their lack of size, they are inevitably absorbed by larger groups.

Next to size, and sometimes of even greater importance, is efficiency of organization. The advantage of size lies not so much in expanse of territory as in the possession of numbers and resources; but, if these factors are not developed and made available through intelligent organization, a large state may be helpless before a much smaller one,—as is the case with India, and with China, at the present time. Two forms of defensive organization may be distinguished: one in which the units are under compulsory training for their particular places in the social system, and the whole state is a permanent military organization; and the other in which the units, though not continuously organized on a military basis, are so trained that they may be speedily transformed into a machine for defence. The first form is advantageous if immediate action is likely to be required, for it takes time to mobilize the best trained social groups. But permanent military organization is usually most essential where the average intelligence of the population is low, for the unintelligent are not easily adaptable to new conditions, and they must be constantly trained for their positions if they are to be of service in time of need. The second form of organization is superior wherever it can be utilized, since it permits a freer development along other than military lines;

and superior scientific or economic attainments may prove to be the determining factor in the struggle of states for survival. A high degree of intelligence in the general population is therefore one of the greatest assets of the state, for it permits the maximum flexibility of organization, thus making possible the most effective utilization of the individual units.

Location, or the character of the physical environment, is another important factor in preserving the independence of states. Natural barriers retard the expansion of states, though they do not prevent it absolutely. A state bounded by the mountains or by the sea has an advantage in defence, and at the same time its barriers check the spread of its own population. States thus favorably situated, therefore, are likely to possess a more concentrated and homogeneous people; and this in itself is a source of strength. Switzerland is an excellent example of a state which has been able to retain its independence through superior location even though its barriers are not so situated as to make the population racially homogeneous. Finally, if a natural barrier does protect a state for a long time, fear of attack gradually subsides, social sentiments become more friendly, and the expense of perpetual measures of defence is avoided. The principle involved is well illustrated in the case of France. A natural barrier separates France and Spain, but no such barrier exists between France and Germany.

Finally, a state may retain its independence through no merit of its own, but merely because of the mutual jealousies of other states. In order that no rival state may gain possession of its valuable territory, its independence may be guaranteed by larger states. A small state may of course avoid annexation by a definite alliance or understanding with a stronger neighbor, but in so doing it is likely to find its sovereignty somewhat impaired.

Although the preservation of a state's existence is evidently a prerequisite to its well-being, it does not necessarily ensure development. Independent existence and progress are by no means identical. A state may maintain independence at such an expenditure of energy that it has no reserve force left with which to develop. The normal evolution of a political unit may be accelerated when the difficulties of defence decrease.

From this point of view then natural boundaries which are easily defended are of enormous advantage. And the development of all states will be greatly stimulated when international relations are such that danger of attack is no longer to be feared, and states may freely devote their energies to the cultivation of their resources and the perfection of their social organizations.

Internal Dangers of States. Internal dangers which threaten the existence of states are much more subtle and illusive than external dangers, and less precaution is likely to be taken against them. In many cases states which have fallen before the attacks of foreign powers have in reality owed their misfortune to internal decay.

Homogeneity. In order to develop normally a state should be fairly homogeneous, but at the same time variations should not be entirely suppressed. The proper balance is most likely to be maintained in a state of moderate size. If a state is small, not only is it liable to perils from without, but it is likely to incur the internal danger also of too great homogeneity. Where class distinctions exist the ruling class, which is the important one, may be very small; and, even though there may be factions within it, these are likely to represent mere personal differences only and not broad diversities of principles. All members of the ruling class are likely to be products of the same general conditions and therefore to have similar and probably narrow points of view. Between different classes a considerable range of variations will of course exist; but ordinarily different classes learn little from one another, and progress is much more certain if the ruling class is large enough to generate its own variations. Lack of size is less dangerous to a state if free and friendly intercourse exists between it and neighboring states, bringing an influx of stimulating ideas from without to ensure progress. Whereas, if external intercourse is restricted, small states become self-sufficient, with resulting stagnation and liability to decay.

Heterogeneity. A more genuine menace to the welfare of states in modern times, however, lies in extreme heterogeneity. This may result from size alone even though no racial distinctions exist. Broad expanse of territory usually means wide

variation in environmental conditions, and these produce diversities in economic and social life which cause dissimilarity in needs. A good illustration is to be found in the United States where unlike conditions developing in the North and in the South aroused antagonisms both economic and political. A partial corrective for heterogeneity resulting from size is to be found in improvement in means of communication. Increased intercourse usually develops sympathy and toleration and is likely to produce greater uniformity of life and ideals. The most successful device, however, for securing unity with variety in a large state is the extension of local self-government, especially the federal form of government. A federal government permits each section to solve its own local problems without interference, yet it does not sacrifice the advantages of large size in dealing with other states. It reduces sectional antagonisms to measures requiring an uniform policy. But there is of course opportunity for much friction in the solution of problems which affect the state as a whole. Inasmuch as the environment varies less in the same general latitude it is much safer for states to extend their boundaries east and west than north and south. Expansion in the same latitude usually produces much less variation in physical conditions than expansion from one latitude to another.

Racial antagonisms. Even though a territory is small, if strong racial differences in population exist these present a dangerous degree of heterogeneity. Racial antagonisms do not always vary with the degree of difference in racial traits. They may be violent and lasting, even when the races are not ethnologically widely separated. Racial differences indeed form one of the greatest sources of weakness to a state, because one or another of the groups may even desire the disruption of the state in order to obtain alliances with more congenial neighbors, or to obtain complete independence. Effective unity and racial differences are difficult to combine. But where oppositions are not so strong as to prevent normal association and intermarriage, friendly association should be encouraged in every way, with the intention of obtaining complete amalgamation. If the races are somewhat segregated local self-govern-

ment according to racial groups will prove a soothing influence and will stimulate more complete segregation. If amalgamation is not possible and territorial segregation does not exist, experience thus far shows that some form of caste system will develop. Caste, however, never affords a basis for a strong state. It merely serves as a means of avoiding open and continuous conflict by an artificial settlement of the relative position of each race.

Class antagonisms. Class conflicts, already discussed in connection with the effects of class divisions, should be mentioned here also as a menace to the existence of states. Ordinarily class oppositions are not strong enough to threaten the overthrow of states; but if society divides into two classes, the very rich and the very poor, the opposition between them may become so bitter that either class will prefer alliance with a foreign power to submission to the dictatorship of the other class. This abnormal situation was recognized by the ancient Greeks as a social disease which they called "stasis." A strong middle class, although not a guarantee against conflicts between rich and poor, is usually a regulator of sufficient strength to keep class oppositions within safe limits. If there is no sharp break in economic classes contacts between extremes are less direct and contrasts in economic position are less evident. A middle class serves as a safety valve, for it makes a continuity in social status, allowing superior individuals of the lowest class to improve their position by working up to a higher social level. If the middle class is dwindling or has become extinct, a sharp chasm exists between classes which is seldom crossed. If superior members of the lowest class are unable to work up to higher social levels they become able leaders of a discontented majority. And such a situation is a continuous menace to the unity of a state.

Inflexible constitutions. Dangers of a different nature threaten states when constitutional provisions are indefinite or when forms of government are inflexible and unadapted to change. In a monarchical form of government, provisions for the succession should cover clearly all possible exigencies, so that the security of the state may not be menaced by machinations of pre-

tenders to the throne. And in a democratic form of government, constitutional provision should be made for changes in party, or discontent will manifest itself by a resort to force. In general each department of the government should have its functions clearly defined so that it will not be in continuous conflict with other departments. And the whole structure of government should be capable of easy growth and expansion so that it will not have to be replaced by a new form to provide for changes in social conditions.

The foregoing are some of the more direct and immediate dangers which imperil states. Minor sources of weakness are innumerable, for political institutions are indirectly related to all other institutions and abnormal conditions in any department of social life might in the last resort affect the stability of a state.

The Evolution of States. In an analysis of the development of states two forms only need to be considered, absolutism and democracy; and progress consists in the gradual transition from the one to the other. In an absolute or despotic form of government a part of the population rules in its own interests. And in a democracy all the people rule for the good of all. Many gradations exist between these extremes.

The form of the state is usually the outgrowth of class divisions and social relationships. If classes are sharply divided and antagonistic, government will be in the hands of the most powerful class, which usually means the most intelligent also; and this class will rule in its own interests, at least to the extent necessary to preserve its power. All states of this type are inherently despotic, though the governmental organization may take many forms. The ruling class may delegate the active exercise of power to a single person, either supporting or assisting him to a greater or less extent in the exercise of that power, thus forming a monarchy. Or the organization may take the form of a hierarchy in which members of the ruling class share unequally in the exercise of power. Or members of the ruling class may share equally in the exercise of power, forming a class democracy, or an oligarchical form of government.

If class distinctions are less strongly marked, and if the in-

telligence of the lowest class is high, this class may win equal legal rights in the government, and some kind of democracy will be established. There are two general forms of democracy, one in which the legislative power is exercised directly by all the people; and another in which the power is exercised indirectly by means of representatives of the people. The former is usually found in small compact communities where social life is simple, and political problems are comparatively easy of solution. The second form develops in large communities with complicated social relations where the political administration requires the attention of specialists.

Evolution Depends upon Sentiments of Equality. The evolution from despotism to democracy depends upon two sets of conditions: first, upon the growth of sentiments of equality; and, second, upon conditions, chiefly political, which permit these ideals to be realized. While successful democracy pre-supposes sentiments of equality, it does not depend upon ideals of absolute equality, but rather upon the admission of the principle of individual rights and the recognition of the prerogative of each citizen to have a voice in the organization of the state and in the determination of its policies. After ideas of equality have become prevalent, political conditions may be such as to hinder or to hasten their expression. The first phase of the problem then is the consideration of the social conditions which are likely to stimulate ideas of equality in the sense of equal rights and privileges.

Sentiments of equality are affected by association. Sentiments of equality may arise either under conditions of actual equality or of actual inequality, though they are attained much more readily if equality already actually exists. If approximate equality exists in society the recognition of it arises if association is unrestricted and intimate enough to give a real knowledge of character. Where actual inequality exists a feeling of equality is most likely to arise if association is casual, for this is sufficient to bring out the essential similarity of human beings without emphasizing the differences. It arouses sympathy for the oppressed and stimulates political justice. More intimate association would bring out dissimilar traits and arouse oppositions.

On the other hand if no real association takes place the sentiment of inequality may continue indefinitely. It is easy for us to rate the foreigner inferior so long as we never associate with him.

Democracies then have sprung up either in small densely populated regions, or in large areas where means of communication have been sufficient to make casual association possible. Cities have been centers of democracy for two reasons apparently. Conditions in centers of population are of a kind to foster ideas of equality, to increase agitation for equal rights, and also to diminish the resistance of the privileged classes to the establishment of democracy. In centers of population people associate freely, ideas are stimulated, grievances are aired, leaders are developed, and revolutionary movements are more easily started. Cities are proverbially centers of radicalism, while rural districts are conservative. Boston was called a hot-bed of revolution in Colonial times, and Paris was the center of the French Revolution. Peasants, even when they have been grievously oppressed, have found it almost impossible to organize and successfully carry on a revolution.

Not only have urban conditions fostered agitations for equal rights, they have also tended to weaken opposition to them. While it is not true that opposition on the part of the privileged classes declines to the extent that struggle is unnecessary, nevertheless conditions of association in urban centers seem to arouse sufficient sympathy among intellectual leaders and other people of influence to assist materially all kinds of movements towards equality.

By heterogeneity of population. In still another way density of population contributes to the growth of democracy. It has already been pointed out that a large and dense population stimulates the division of labor, and that specialization is favorable to ideas of equality. A heterogeneous population, such as is found in industrial centers, is more receptive to democratic ideas than is a population separated into two opposing classes, such as owners and peasants in an agricultural country.

While heterogeneity favors ideals of equality, the heterogeneity must be individual and not too evident. If individual differ-

ences, such as racial characters, are easily distinguishable, they hinder rather than help the development of democracy. When differences are external, such as color, casual association reveals the differences instead of the similarities and does not promote sentiments of equality. If the idea exists that one race is inferior to another, casual association merely reveals the racial character and immediately classifies the individual as a member of an inferior race without regard to his individual qualities. Superior qualities would be manifested only after intimate association and such association is uncommon among peoples harboring antipathies. For this reason casual association between whites and blacks does not stimulate democratic sentiments. Similarly a distinctive form of dress worn by manual laborers tends to differentiate them at a glance as members of an inferior group; and consequently such a custom is undesirable in a country striving to realize democracy.

By the size of the state. Finally it may be said that a large state provides conditions more favorable to democracy than does a small state, though it may not be easier to win democracy in a large state. Size itself tends to stimulate broad-mindedness and to diminish exclusiveness. In a large state an individual counts for less, tending to become lost in the mass. Furthermore, the privileged class is larger and hence less exclusive. When the franchise already includes large numbers there is less opposition to its further extension than where the privileged class is small and self-sufficient. If, to be sure, actual equality exists to a high degree in a small state, political justice is more easily realized there. But if actual inequality is considerable the advantage lies in the large state.

To recapitulate, the form of government usually reflects the social conditions in a state. A small state with a comparatively homogeneous population and no sharp class distinctions is likely to be democratic in its political organization. A state which has strong class distinctions, and especially one which has very diverse elements in its population, is likely to have an absolute form of government. But, as population becomes more dense and concentrated, as means of communication improve, and division of labor develops, and as the intelligence of the

mass of the population increases, the state will become more and more democratic. Environmental conditions which favor concentrated populations and good means of communication have been outlined in a previous chapter and need not be repeated here.

The Influence of Political Conditions. The conditions above outlined are those which stimulate the growth of democratic ideals; but the realization of those ideals may be brought about more or less quickly according to the strength of the governing class. If the governmental machinery is well organized and efficient, radical ideas may be kept in check and revolutionary attempts may be suppressed much more easily. If the privileged class is united, — and probably it is more likely to remain united if it is not too large, — it will offer much more effective resistance to the extension of political power. If the governing class is divided, it is possible for the masses slowly to acquire power by playing one party against the other. In England the split between the king and the nobility offered the commons the opportunity to increase their power. Each party was willing to concede greater power to the commons in return for assistance. Sometimes a division arises between the land-owning and the industrial classes, resulting in political advantage to the common people. And if the aristocratic class is large it is somewhat easier for others to gain admission to it than when it is small and united.

Finally it may be said that if the ruling class is using its power wisely, if it is ruling ostensibly for the good of all, the people may be kept contented and tractable much longer than if the rulers use their power arbitrarily and oppressively. Bismark's industrial reforms doubtless helped to defer the realization of democracy in Germany, even though those measures were not satisfactory to the socialists.

The attainment of democracy, therefore, in any country rests upon the outcome of the struggle between the forces favoring equality on the one hand, and the resistance of the privileged classes on the other.

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CHAPTER XIV

LAW

The Nature of Law. The instrument through which the state exercises its authority over the individual is law. Gareis says¹ that "the law is the means of peaceable regulation of the external relations of persons and their social communities among themselves."

Law necessarily arises out of the exigencies of the life in common. In the process of satisfying his desires man inevitably comes into conflict with others who are also attempting to satisfy their desires. Among nations such competition leads to war; but within the group, inasmuch as unrestrained conflict is inconsistent with group welfare, it becomes necessary to curb primitive passions so that individual rivalries may be subordinated to the needs of group unity. Hence even in primitive groups certain regulations were gradually formed restraining the individual in the interest of the group, and were summarily enforced by the leading men of the group. The rules were of the nature and had the force of custom; and they existed and were executed before the formation of any definite social organization such as we now understand by the state. When the state was organized law became its regular method of expression, and law functioned only through the agency of the state, though other forms of social control were exercised through other channels. Thus, while in its origin law may be traced back to custom, among all advanced peoples it is the expression of the supreme power lodged in the state.

Law Represents the Supreme Authority of the State. Of all forms of social control law is supreme, for it is the voice of the state, that form of social organization having ultimate authority. Other methods of social control, such as conven-

¹ Science of Law, p. 29.

tions, morals, and religion may exert strong influences on conduct without direct interference on the part of the state; and these forms of control may sometimes seem to have a sphere of their own outside the jurisdiction of the state, but such is not the case. The state may interfere with customs which constrain, it may repress individual acts which are pernicious, and it may forbid religious practices which it considers demoralizing. The law, to repeat, may attempt all these measures, because it emanates from the sovereign state; but the question of whether its interference is wise in the long run is another matter. The problem, so often discussed, of the limits of law does not refer to the possible subordination of its jurisdiction to superior or rival authorities; it refers rather to the wisdom of confining its power within prescribed limits.

Limitations of Law. The authority of the state as expressed in law, though theoretically superior to all other forces and institutions, may, for practical purposes, be limited by three kinds of considerations. First, by the possibility of failure in its application; secondly, by the danger of impeding progress; and, thirdly, by the practical consideration of the strength of the governing power.

The possibility of failure. It is clear that the potency of the law should always be a prime consideration in determining the character of legislation, for effective control is always the end sought. Now it is evident that law is more effective in some lines than in others. Inasmuch as the method of the state in exercising control is to judge from external appearances and to compel by physical force, it must be much more successful in influencing outward conduct than in determining thoughts and beliefs. To be sure the state may influence beliefs by indirect means, such as the establishment of schools and the control of the press, but it cannot do so by direct legislation. Therefore the first restriction upon the domain of law is that it should be confined to external conduct, while the formation of beliefs should be left to other agencies of social control.

But further limitations to the domain of law are advisable even within the sphere of external conduct, for some kinds of acts are much less readily regulated through legislation than are

others. Some activities essential to the welfare of society are determined by the environment; and, therefore, to attempt to modify them by law would be absurd. In an agricultural community it would be useless for a state to forbid the raising of wheat and to require the establishment of manufacturing industries, but it could stimulate agricultural industry and it could by law protect the farmer and his crops. A state would find it difficult to require roads to be built over mountains instead of through valleys; but it could encourage the building of necessary roads and require that they be kept in repair. It may be objected that these ends cited are not merely impossible but undesirable, and that they would be unsuccessful anyway, because no one would want them. Nevertheless these extreme illustrations serve to bring out the point with regard to the limitation of legal control. Society must be looked upon as a group of men in a given environment out of which, through the action of natural forces, complicated social life is gradually evolved. The province of law is to assist these natural forces, not to combat them. In other words it can aid in the process of adaptation taking place among individual units; but it cannot successfully oppose or disregard the natural forces at work. If a gardener wishes a plant to flourish he must consider first the nature of the plant and its needs, and treat it accordingly; and even then he cannot produce a flower other than that determined by the seed. He may however hasten its growth by enriching the soil, and he may protect it from injury from other plants and animals. Much the same things can be done for society by the state through its laws. It may protect its members from the anti-social who would encroach upon them and injure them, and it may stimulate the development of society by observing and assisting its natural tendencies to growth. Some of the older philosophers would admit only protection as the proper function of the state; but, contrary to their view, a large amount of legitimate legislation has grown up which has for its object not merely protection but betterment through improved conditions. The danger is not that of interference by the state but rather of the use of unnatural or unscientific methods which will dwarf or cripple society. The legislator then

should be a man of broad views, who understands the nature of society and who has a vision of its future possibilities of development.

Specific limits cannot be set to the kind of activities to which legislation should be confined to be successful. Ordinarily old customs and habits cannot be modified by law so easily as new, but even this rule is subordinate to the fundamental principle of adaptation already given. If a custom has become obsolete, or at least if it interferes with the smooth working of social forces and with progress, it may be modified by law more easily than newer customs which are still adapted to the social system. However of two methods of action of equal utility that which has had the longest duration is evidently the less easily modified.

A second limitation is found in the fact that some activities are basic to our social life while others are more superficial. Social institutions are built upon the former, and hence any modification of them is disturbing to social life and will be resisted. Other customs are less fundamental and can be modified without so seriously affecting related spheres of social life; and hence laws altering them may be executed more easily, provided always that they are in harmony with social development. An enlargement of the suffrage is comparatively easy to execute because the immediate effect is merely to alter custom. A general prohibition law is more disturbing because it affects fixed habits, alters social relations, and also causes a reorganization of industry. It is generally true that economic activities are fundamental and hard to alter by law; but a division between economic and other social activities would be far from a correct classification of actions that could be and those that could not be modified by law. Some customs properly called economic are superficial and would not resist change, while customs connected with other institutions, such as the family or the state, are fundamental and therefore resistant to change.

The conclusion with regard to the probable success of legislation where it is concerned with the individual, is that it controls external acts more easily than thoughts and beliefs; and that, where it is concerned with social activities and relations, it must confine itself to counteracting destructive tendencies and to

stimulating the forces for development already at work. Such action tends to greater adaptation and a more healthy life, and will therefore be desired by normal individuals in society. Such laws can be enforced. To pass laws, however ideal they may be, which do not apply to the immediate stage of development will not affect adaptation and such laws will be ignored or evaded. To pass laws which are not in harmony with the social life and structure will check adaptation; and, if enforced, will repress and cripple society. Within the general limits of adaptation to social needs it may be added that activities which have long endured will continue most persistently in the face of repressive law; and those activities which are fundamental, in that they influence social life in the greatest variety of ways, will resist change by law until society has so far outgrown them that their evil effects obviously outweigh their good effects. Under such circumstances it may be argued that fundamental institutions should never be interfered with by law, except as they need protection, because they will persist so long as they are useful and will pass away of themselves when they become detrimental. And legislation is so frequently defective that any attempt at interference is likely to do more harm than good. While recognizing the truth of this argument, it is possible nevertheless to expedite the passing of an obsolete institution by wise legislation. However, the purpose of this part of the discussion is to point out the possible limits to legislative action rather than the wisdom of attempting legal direction of social life.

The danger of impeding progress. The second consideration which might restrict the scope of legislation, that is, its effect on welfare and progress, has already been partially solved in the discussion of its successful application. That type of legislation which is most practicable is probably also the most serviceable. Law which aids individuals to adapt themselves more perfectly to normal life and the healthful progress of society, would be the wisest kind, and no further principles need be formulated if legislators had perfect wisdom for the enactment of laws and a clear vision for discerning future needs. As it is, further restrictions are needed to minimize the effects of ignorance and selfishness on the part of legislators.

The chief dangers to social progress from legislation are, first, that laws may be unwise in the provisions; and, second, that they may be over-extended in amount. Of the first danger little need be said. A superior quality of legislation must depend both on improvement in practical politics, which will procure a higher class of representatives; and also upon a more widespread knowledge of social forces, sufficient at least to reveal the probable effects of legislative interference. A better comprehension of the normal in society might also enable us to distinguish more accurately the conditions requiring interference from those which do not.

The perils of over-legislation, even where legislative provisions are efficient, are not generally comprehended, except the obvious fact that a legal system is liable to become unwieldy and complicated. The chief danger of too extensive legislation is repression. Unable to recognize normal development in society, or unwilling to await spontaneous growth, we try to force a desired end through the direct use of the power of the state. Such a policy often interferes with the natural development of the individual in response to social conditions; and the loss may be greater than the gain. The loss from interference with the free growth of individuality is not foreseen and therefore not appreciated. Complete individual development means variation and the full exercise of one's special powers; but it carries with it the possibility of the development of erroneous views and unwise leadership. The minor immediate benefit of legal repression is usually chosen at the expense of a larger ultimate gain of individual freedom. The tendency of all forms of social control is to enforce artificial uniformity, and to obliterate the good as well as the bad arising out of spontaneous variation. To suppress the evil and select the good from individualism through legislation is difficult, because of the uniformity in the application of the law. Therefore with our present limited knowledge of social forces, it seems wise to avoid any extension of legislation which means interference, showing more faith in spontaneous social development and contenting ourselves with occasional prunings, where unhealthfulness of growth is apparent. Individualism itself should be carefully guarded and

stimulated as a product of unknown value. Over-legislation is the result partly of undue haste in realizing ideals and partly of pure indolence. It is much easier to declare an evil abolished by a sovereign body than it is to resort to the slow process of elimination by the method of education or by the more thorough system of the removal of causes.

Over-extension of legislation is most common with those who have recently acquired political power. Their newly acquired power seems to them a short cut to the social ideal. Popular representation, universal suffrage, the initiative and referendum, have all been followed by periods of excessive control through law. These progressive extensions of political power have been heralded as means of realizing sweeping reforms; and they have invariably been accompanied with an over-extension of legislation, restricting individual freedom. It is only through long experience that the proper limitation of legislative control is learned.

The insecurity of the governing power. The restrictions upon legislation which arise from the instability of the governing power are of little interest theoretically, but practically they have a continual influence upon the character of legislation. No governing power, whether it be an individual ruler or a political party, is absolutely secure in its position. The first instinct of a governing body, like that of an individual, is self-preservation; and the next is advantage for the government and its supporters. So-called unselfish legislation for the general welfare is too frequently merely a means to self-preservation. The despot who holds his power through military force may rule to the advantage of his own circle so long as the army is kept loyal by participation in the spoils. But as a government grows to be more democratic it has to legislate in the interests of a larger and larger number of people. If the governing power in a democracy represents a strong party, it may ignore to a greater extent the claims of the minority and rule in its own interests. If parties are more evenly divided, self-preservation requires the abandonment of narrow and flagrant party legislation and greater consideration for outside interests, in order that the support of the doubtful and independent elements be

retained. A large independent vote therefore is likely to be the most efficient curb on narrow party legislation.

If a governing body finds its position precarious, its insecurity is usually reflected in weak legislation. Strong positive measures are side-stepped, and legislation is likely to be vacillating, or to be confined to unimportant matters to avoid alienating support. However, a tottering government is not always equivocal or colorless in its action. Occasionally, if it contains strong leaders, it will pass some bold measures for the general welfare in order thereby to regain its lost prestige. But the governing body which feels it has the confidence of an intelligent but independent majority is, as a general rule, most likely to enact broad measures for the general welfare.

Two Theories Concerning the Basis of Law. In addition to the problem of the origin of law, another, closely related, deals with the principles comprised in it. Upon the subject of the basis of law, there are two schools of thought. One believes that law represents an abstract principle of justice in the process of realization; and the other holds that law is based on force,—that it is the control of the weak by the strong. Convincing arguments can be made for both these theories, because they both have in them an element of truth. At any given time the character of the law is governed by two distinct forces; the nature of the state, or perhaps the general organization of society, and the moral ideals of a people; that is, a social relationship on the one hand, and a psychological force on the other. These two influences cannot be of equal power, however, because they are often incompatible with each other and hence one must be subordinated to the other. It has already been pointed out that self-preservation is a primary instinct with governing bodies; and, according to this principle, at any given time moral ideals may be subordinated to the needs of self-preservation. States which were formed after conquest from the amalgamation of conquerors and conquered were naturally based on force. The law registered the powers and privileges of the conquerors and ideas of abstract justice were ignored in maintaining the position of those in power. In such cases it is almost a truism to say that law was based on force, and that it

was used to guard the position of the strong. Every governing body tries to retain the existing social relations. When these relations are modified so that the former privileged class loses its power, the change is in the nature of a revolution.

Even under conditions of gross inequality in a state, however, moral principles are not entirely ignored. Ideals of justice continually influence legislation and modify social relations, though always within the limits of the existing social organization. Under a system of slavery the law may materially improve the relationship of free men to one another; and it may make more humane the relationship of master and slave; but it presupposes the system of slavery, and moral ideals are molded to the needs of that system. This is uniformly the relationship of these two factors at a given period of time and under a given social organization; but over long periods of time moral ideals come to be of increasing importance in the formation of law. Without attempting to determine the relative influence which ideas of justice and the existing social relationships have had in the struggle for social equality and political freedom, it is evident that, as societies become more and more democratic, class domination and special privilege receive less and less consideration in the making of law. And when democracy is completely realized principles of abstract justice in legislation will not have to be modified in the interests of a privileged class. Social relationships can then be made to coincide with moral principles.

The conclusion with regard to the relationship of social status and abstract justice in the formation of law is then that at any given time moral principles are subordinated to the need of preserving the existing social relations; over long periods moral principles triumph, social inequalities give way, and justice for all comes to be the chief principle underlying legislation.

The Development of Law. *Amount of legislation.* The final subject to be considered, the development of the law, has three aspects; the quantity of legislation, the change in the subject matter of law, and the methods of legislation. The amount of law needed in any society may easily be deduced from the nature of law, as previously outlined. Law is a means of social control, and therefore its amount increases with the need

for social control. Law is, however, only one of several forms of control. It arises directly out of the authority of the state, and is based on force as the ultimate means of coercion. Therefore laws do not necessarily multiply with the need of social control of every kind, but only with that form exercised through coercion by the state.

A detailed analysis of the conditions which require an extension of legislation necessitates a classification of law. For the present purpose a division of law into two general classes will suffice: repressive law and regulative law, divisions which coincide approximately with criminal law and civil law. Repressive law has to do with those external acts ordinarily understood as immoral, that is, those which, as Durkheim points out, in their nature arouse the strong opposition of society as a whole. The reaction against them comes from the instinct of self-preservation itself. Regulative law applies to conduct which is not in itself considered immoral. It attempts to administer rules which will facilitate the smooth operation of social life.

The need of regulative law then is evident. Its amount increases with multiplicity of social contacts, for multiplication of contacts brings ever growing possibilities of friction and conflict. Regulative law therefore grows with the volume, and more especially with the density, of population. A manufacturing or a commercial state with its large cities needs more laws than an agricultural state with its scattered population; and cities must have more regulations than rural districts. Increase in the density of population alone is not quite sufficient, however, to explain the need for increase in regulative law. Conflicts arising in society are not wholly personal, they are rather conflicts in interests; and those interests arise out of property as well as out of individual activities. The need for law therefore may increase with the growth in the amount of property or with a change in the forms of wealth, and also with increased ease of travel and communication, which multiplies contacts of all kinds and therefore causes new conflicts. An increase in the density of population is the most evident cause for an increase in regulative law, but even in a stationary population any change in social conditions may necessitate new laws.

A complete analysis of the reasons for an increase in criminal laws would involve a discussion of all the causes of crime, and would be out of place in this brief treatment. The problem here, however, is really a narrower one. It has to do with the number of crimes, rather than the number of criminals committing the same crimes. In general an increase in acts which a society classifies as criminal arises out of two sources: first, changed social conditions which make possible new methods of injuring society; and, secondly, an improvement in the accepted standards, which causes a people to legislate against a larger number of unsocial acts. The changed conditions which give occasion for new crimes are chiefly economic, but they may arise from altered social or living conditions. For example, pure food laws were essential only after people began to purchase prepared foods in the market. From this point of view repressive law has an origin similar to that of regulative law.

The conditions which give rise to changes in moral standards are analyzed in a later chapter. It may be said here, however, that new moral standards or principles are first perceived by social leaders who are able to grasp the new needs of society. These ideas gradually spread by education and agitation until finally they are accepted by the great mass of the population; then, if they are of suitable character, they may become embodied in the law. Criminal law therefore will show a tendency to increase among a people progressive in its standards, whereas it will not show any such increase among a people which is stationary. But an improvement in standards implies also an increase in the proportion who will fall below the new standard, and therefore an increase in the number of those violating the law. This is one reason why crime seems to increase in a progressive society more than it does in a backward society. This increase does not indicate deterioration, as is sometimes supposed, but rather improvement. While regulative law increases directly with social contacts, repressive law is affected only to the extent that such increase in density stimulates changes in social conditions or tends to modify moral standards. It might be supposed that in a progressive society the need for criminal law, at least, would decrease; but it is probable that both regu-

lative and repressive law normally increase in amount, though the former increases much more rapidly than the latter.

The subject matter of law. The subject matter of law obviously changes with changed social conditions. Criminal law developed first, because crudely organized societies resented individual acts threatening the welfare of the group, before social activities developed sufficiently to need regulation. Next came civil procedure. And with the growth of property and the extension of trade came the law of property and of contracts. With the wider development of commerce and industry commercial and industrial law arose. And as the state became strongly centralized administrative law grew up. Last of all, as states came into closer contact and interdependence increased, international law developed. Law between states, like that within a state, comes in response to the demand of the larger group for peace and good will. Just as private warfare is intolerable within a social group because it interferes so seriously with normal social activities, so group warfare will become intolerable within the great society of nations when that association is sufficiently organized and unified. As self-consciousness awakens in the larger society the pressure will become overwhelming for the rational settlement of disputes, and international law will become a vital force.

Law is ever engaged in the regulation of new activities and in harmonizing conflicting interests; and it represents that organization which has sufficient unity and power to coerce its members.

Scientific legislation. In the course of the evolution of law its amount tends to increase, as has been pointed out, in response to the needs of a progressive society, and the subject matter changes with social activities. Finally it should be noted that the method of state action is also subject to change. The change in method is from direct legislation to indirect legislation, or from compulsion to what Ward calls attractive legislation. To quote from this author: —

“ The principle involved in attraction, when applied to social affairs, is simply that of inducing men to act for the good of society. It is the harmonizing the interests of the individual with those of society, of making it advantageous to the indi-

vidual to do that which is socially beneficial; not merely in a negative form, as an alternative of two evils, as is done when a penalty is attached to an action, but positively, in such a manner that he will exert himself to do those things that society most needs to have done. The sociologist and the statesman should coöperate in discovering the laws of society and the methods of utilizing them so as to let the social forces flow freely and strongly, untrammelled by penal statutes, mandatory laws, irritating prohibitions and annoying obstacles."

Ordinarily the method of state control has been to deal with effects rather than with causes. Acts or conditions which were deemed injurious were forbidden, and laws were enforced by the imposition of penalties. In other words law has dealt with external manifestations rather than fundamental causes of conduct. But state regulation, to become efficient, must take cognizance of the causes of social phenomena; it must remove unhealthy conditions by modifying these causes as well as by merely forbidding the acts. For example, formerly, petty violations of law on the part of children in cities were suppressed by force. The police were continually running down youthful violators of the law, and naturally a state of war existed between children and the authorities. At the present time a large part of this lawlessness has been removed by the establishment of playgrounds where children have a normal outlet for their activities; and consequently the relation between the child and the officers of law has been greatly improved. Instincts and desires of human beings require normal means of expression. When these are thwarted anti-social acts result. A wise exercise of the authority of the state would consist in so altering and perfecting social conditions that all persons could find normal satisfaction for their desires and suitable outlet for their energies. In this way anti-social acts could be avoided. At present, however, the state usually ignores causes. It permits abnormal social conditions to remain, and then tries to escape the inevitable consequences by the imposition of penalties upon the criminal conduct resulting. So to regulate conditions that desires may be normally gratified and individuals may realize their natural development is attractive legislation. It will come only with a

better understanding of social laws and a more intelligent application of them in legislation.

Better Legislation is the End to be Sought. The law should be looked upon as the crowning institution of the whole social organization, because through it the state can alter social conditions and direct consciously the course of social evolution. That the state has thus far shown little intelligence in carrying out these possibilities is not the fault of the institution. It indicates rather the primitive means which the state has chosen with which to carry out its wishes.

While the importance of law as an institution is recognized in modern society, a misconception exists as to which of its departments is the most important. The administrative side is the part now chiefly emphasized, and much talent is wasted in the exposition and the execution of laws. The making of laws, the legislative side, is commonly neglected. Legislation is left in the hands of mediocre, or at least unskilled, persons. If greater care were exercised in the formation of laws, less ability would be needed in their execution. Our misplaced emphasis on the administrative aspects of law is the result of our erroneous philosophy. We believe that a legislator is sufficiently equipped if he knows the wishes of his constituency. If legislators agree that certain acts should be considered crimes their duty is thought to be fulfilled when they so declare it in the proper technical language. The accepted theory is that the elimination of evil results from the mere recourse to the authority of the state, and that therefore the highest intelligence and ability is called for in the execution of laws, when the truth is that to abolish evil by law would require more talent than could ever be obtained in the legal profession.

If our philosophy of social control called for the removal of causes of evil, then the province of the legislator would be to work out the best method of eliminating an evil instead of merely declaring that it should be eliminated. This would call for the most able and experienced men in the work of legislation. Under such a system the evil would be eliminated indirectly through changed conditions, rather than through the trial and punishment of offenders, or through the fear of such punishment. If laws

were made on a scientific basis, therefore, less time and energy would have to be devoted to the treatment of offenders, because there would be fewer of them. As the law is the crowning organization of the social structure, attractive legislation is the final objective of state control, for social conditions can be successfully modified only through scientific understanding and regulation of underlying forces.

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PART III
GENETIC FACTORS

CHAPTER XV

THE DESIRE FOR RACE CONTINUANCE

The second physical desire, the desire for race-continuance, leads to social activities of equal importance to those resulting from the desire for self-preservation. Economic and genetic forces and institutions are so closely interrelated that they cannot be fully treated independently. This section will serve therefore to elucidate and supplement the preceding section by the new phases of social life it presents.

Nature of the Desire. The desire for race-continuance has two manifestations, sex attraction and parental affection, the latter being the later and more refined development. The purpose of the sex instinct is to ensure reproduction, while parental affection is required for the proper care of the offspring. Inasmuch as the number of offspring decreases in the higher forms of animal life, individual care of the young is indispensable for survival. Hence parental affection comes to have increasing significance over sex attraction in the welfare of the higher species. In fact the interest of the most highly developed races of men requires the subordination of the sex instinct to parental desire. It is even possible that parental desire may ultimately be the dominant motive in reproduction.

Reproduction may be looked upon as a phase of growth resulting from abundant nutrition. Haeckel defined it as "an overgrowth of the individual." When single-celled animals, like the amoeba, reach a certain size, further assimilation causes subdivision and the formation of two complete cells. Much the same principle is involved in the reproduction of the higher animals. First, in the young, nourishment goes to physical development, then as physical growth declines sexual development begins. With adults; furthermore, the reproductive desire is strongest when food is most abundant and when energy from

nourishment is not consumed in keeping the body warm. Adequate nourishment, therefore, is the prerequisite not only of the preservation of the individual but of the preservation of the species as well. The sex instinct, like the instinct for self-preservation, is maintained by the selective process, though the complexity of advanced social life prevents selection from acting so directly and unerringly upon the reproductive desire. On the average, however, persons having little or no desire for race continuance leave fewer offspring; and in the long run the type is gradually subject to elimination.

Although parental affection must be considered a part of the desire for reproduction, it does not have its origin in the sex instinct. It arises in the parent out of a consciousness of the helplessness and dependence of a being similar to himself. Hence the growth of parental affection has kept pace with the lengthening of the period of infancy.

Normal and Abnormal Manifestations. The desire for reproduction, like other desires, has both normal and abnormal manifestations. The former leads to healthy social activities and progress, and the latter to pathological social conditions.

In a healthy individual the sex emotion is diffused, influencing both mind and body, and stimulating the highest and most enduring sentiments. On the individual side, sex consciousness inspires sentiments of chivalry, or of mutual respect, between the sexes, and generally increases sympathy for the weak. It acts also as an incentive to the best mental products, especially those of an emotional nature such as music, art, and literature. On the institutional side, the sex desire is the basis of family life,—that indispensable agency for the care of the succeeding generation.

Although healthy action of the sex desire is so important for social well-being, this desire is more easily perverted than any other, because the welfare of society does not always coincide with its satisfaction but rather requires its restraint. The perversion of the sexual instinct produces some of the most serious social problems. In a sensualist respect for the opposite sex disappears, or may even change to aversion, and the natural tendency to protect the weak may be replaced by morbid pleasure in cruelty and suffering.

The first result of this perversion of instinct on the individual himself is the dissipation of energy, which should be conserved to increase physical and mental vigor; the next is its likelihood of spreading serious diseases which sometimes result in physical and mental degeneracy. Sex perversion also threatens the institution of the family, as it renders the individual incapable of strong attachments for the opposite sex and makes him unfit for parentage.

These evil effects on the individual and on family life are reflected in the whole social structure. The perversion of the desire for reproduction has been a potent factor in the decline of civilizations, a well known instance being that of the Roman Empire. The indications are that older societies are specially liable to suffer from perversions of the sex instinct. In such societies there usually exists a large class with economic needs satisfied, who, unless other pursuits absorb their energies, are likely to devote themselves to the mere indulgence of appetites instead of permitting their desires to stimulate them to higher efforts. In addition, a class also appears in which economic competition is so strong as to make the support of a family increasingly difficult without lowering standards of living. And whenever desires cannot be satisfied normally they are liable to perversion. Consequently in modern societies perversions may appear for different reasons both in the rich and the poor classes, but it is the demoralizing example of the idle rich which has the strongest influence in undermining the moral standards of society.

CHAPTER XVI

NATURE AND CHARACTERISTICS OF THE SEXES

The Biological Basis of Sex. The characteristics of the sexes and their relative positions in the social system have received attention from the earliest times, yet the wisdom, or the folly, of the ages has not sufficed to yield a solution. While present theories concerning the character of the sexes are not nearly so crude and extreme as the old ideas, still a distinct difference of opinion exists concerning the nature and extent of sex differences. Jacques Loeb says that men and women are physiologically different species; while Mrs. Wooley, in reviewing recent literature on the subject, notes a general trend towards the opinion that "there are probably few if any psychological differences of sex which are of biological origin."

Reasonable ground for both these attitudes may be found, and it is even possible that they are not nearly so divergent as they seem. The facts of inheritance would lead to the assumption of a fundamental equality of the sexes. Inasmuch as children of both sexes inherit traits indiscriminately from either parent, it is reasonable to suppose that no great divergence of ability could take place. On the other hand, inasmuch as sex affects the whole nature of an individual, it would not be surprising to find a difference in the expressions of the same traits in the two sexes. Just as physical features which a daughter may inherit from her father are modified and softened to conform to the feminine type of face, so mental characteristics might be adapted to and fashioned by the nature of the sex which receives them. In other words the sexes may be equal psychologically and still not be identical.

The problem of differences in sex characteristics is complicated because there are two possible sources from which they may have been derived. They may be traceable to original biological dif-

ferences, or they may have arisen in response to differences in modes of life. Most investigators seem to be interested in the biological source only and when divergent traits are shown to result from new habits and interests, they are dismissed as of no fundamental significance. If however the majority of women should continually, and perhaps inevitably, have special interests, or modes of life, tending to develop traits peculiar to themselves, the resulting divergences between the sexes would be of considerable importance to the sociologist.

From the biological point of view sex characteristics are traceable to fundamental differences in cell structure. The protoplasm of the cell is continually undergoing a chemical change known as metabolism. The protoplasm is broken down through use and is built up again through the assimilation of nutrition. The former process is known as katabolism and the latter as anabolism. This fundamental process of metabolism differs in the two sexes, the rate being higher for the male than for the female. Formerly it was said that the male was more katabolic and the female more anabolic; but, inasmuch as this characterization might imply that one process could go on without the other, biologists now express the same idea by saying that the sexes represent different levels or rates of metabolism. The difference in the rate has been found to be about 6%. The higher rate for the male cells results in greater activity, and the lower rate for female cells favors the storing of energy.

A recent development in the study of biological sex characteristics traces them to glandular secretions. Several ductless glands in the body pour into the blood their secretions, called hormones. These secretions have different compositions in the two sexes, and what is known as the "secretory balance" determines the chemical composition of the blood, and is the basis of the difference in metabolism. The hormones are now supposed to be the original causes not only of differences in metabolism but of all the differences in the tissues and the organs of the two sexes. Sex then is, in the last analysis, a matter of the chemical composition of the body which in turn is associated with the combination or balance of the secretions from the various glands.

Psychological Characteristics of the Sexes. The differences in the chemical composition and in the cell structures of the sexes are reflected in the entire physical and mental makeup of each sex. Based on their biological characters, Professor Geddes makes the following shrewd deductions concerning the personal qualities of the two sexes.¹ "Males are more energetic, passionate, and variable. They lead in progress. Females are more conservative and stable. Males are stronger, have more independence and courage, and are capable of spasmodic bursts of activity. Females show more constancy and sympathy, and they are capable of more patient continuous effort. They show more appreciation of details and more rapid intuition, while males show greater disregard for details and a stronger grasp of generalities."

In order to obtain a more exact quantitative statement of mental qualities, psychologists have conducted numerous laboratory experiments, with the general result that mental differences were found to be fewer and less clearly marked than was anticipated. Contradictory results have often been reported by different investigators from similar sets of tests. In laboratory tests, as well as in other methods of observation, it is almost impossible to separate influences due to original biological differences from those arising out of environmental influences. If tests are made before adolescence, it is possible that fundamental sex differences will not be manifest; and if they are made after adolescence, environmental influences will have had plenty of time to make their impression.

In conducting psychological tests allowance has to be made for two physical differences which are now generally agreed upon. Girls are physiologically older than boys by a year and a half to two years; and this fact causes them to show general superiority up to about the age of sixteen, when boys begin to make a relatively better showing. On the other hand boys have more muscular strength than girls; and this fact alone causes them to excel in some kinds of tests.

One of the first detailed studies of sex differences was made

¹ *Evolution of Sex*, p. 289.

by Dr. Helen P. Thompson.¹ She found that men showed a marked advantage in motor ability, strength, rapidity of movement, and rate of fatigue; and a slight advantage in precision of movement. Women were superior in the formation of new coordinations. Men were slightly superior in manual dexterity, and in ability to make very delicate and minutely controlled movements; while women showed greater ability to coördinate movements rapidly in response to unforeseen stimuli. Women showed decidedly better memories, and they were slightly more rapid in associative thinking. Men showed superiority in ingenuity. Social consciousness was more prominent in men, and religious consciousness in women. But, contrary to the generally accepted idea, she found little difference between the sexes in the degree of dominance by the emotions.

On the whole Dr. Thompson thinks that original mental differences in the sexes are slight. She attributes the superiority of the male in various tests involving muscular control to his greater physical strength; and other differences, in her opinion, arise chiefly from diversity in training and in mode of life rather than from the biological nature of the sexes.

Studies by more recent investigators have brought out other distinctions, some of which are of significance. Professor Karl Pearson, from his reports on more than 3,000 school children collected primarily for the study of heredity, brings out incidentally certain differences in traits between boys and girls, from which it appears that boys are more athletic, noisy, self-conscious, and quick tempered, and girls are more shy, popular, and conscientious.

Professor Thorndike² reported upon a number of traits, in some of which sex differences were appreciable and in others practically negligible. The most noticeable difference was that women are much more likely to be interested in persons and men in things. An appreciable superiority for men was found in accurate and orderly retention of what is read, in love of sedentary games, independence, zeal for money making, and quickness in recovery from grief. Women showed appreciable superiority

¹ Psychological Norms in Men and Women.

² Educational Psychology, p. 32.

in industry, adroitness in manual work, emotionality, impulsiveness, temperance, and desire for change. Slight differences in favor of women were found in activity (of the aimless sort), dissatisfaction with oneself, religiousness, excitability, sympathy, patience, risibility, talkativeness, gaiety, and vanity of person. Slight differences in favor of men were found in love of sports, and in humor. It will be noticed that Thorndike disagrees with Miss Thompson in regard to emotionality. He finds emotionality and other similar traits appreciably stronger in women than in men.

Professor Burnham¹ in a review of recent literature concludes that mental differences in the sexes are not strongly marked; or at least, concerning many characteristics, he finds the testimony conflicting, and no general agreement reached. He believes that convincing proof exists of differences in the emotional life and in suggestibility; but he finds no satisfactory evidence of significant differences in mental ability or in the ability to accomplish different kinds of work.

While laboratory tests are no doubt useful in problems of this kind, they have their limitations and too much reliance should not be placed on the results. In the first place the tests themselves may be inadequate to measure fully the character or quality studied. And in the second place the laboratory method is too restricted to yield a complete solution of the question. It is too much like trying to ascertain the difference between plants by using the microscope. Some similarities and some dissimilarities may be found by such minute comparisons, but a more general observation at a distance would also be revealing. And however similar two plants may seem when they are immature, there is always the possibility that they will bloom differently at maturity.

Professor Jastrow,² in a broader and more penetrating analysis than those based solely on laboratory tests, points out that the male with his greater physical strength shows more of the fighting instinct, accompanied with aggressiveness and desire for mastery; and these underlying qualities develop into greater male initia-

¹ Educational Review, 62: 273.

² The Psychology of Conviction.

tive, enterprise, and ambition to achieve. Later they manifest themselves perhaps in greater curiosity and interest in experiment, and in the desire for new experiences. On the other hand the life of the female is more absorbed with racial interests. Instincts of mating and of motherhood are fundamental with her. And these instincts develop in her the nursing quality to a marked degree, making her more sympathetic and quicker in emotional response. She also exhibits greater self-sacrifice, and is more conscientious, patient, and sentimental.

The results of the various experiments and observations on sex differences are not easy to evaluate, and it is particularly difficult to distinguish original from acquired characteristics. It seems probable that the differences most generally agreed upon are usually of biological origin, and that these differences are in turn likely to be intensified by the diversity of interests arising in the lives of the two sexes particularly after marriage. It is quite possible that the kinds of differentiations usually tested in laboratories may reveal only a minimum of differences among the subjects tested, because these are usually groups of young men and women who have been undergoing identical training in coeducational institutions. There seems to be no particular point in trying to minimize sex differences by tracing them to the greater physical strength of the male. If greater strength is a permanent characteristic of the male, as it probably is, then the various traits derivable from it are permanent and will be of as much significance in economic life as those derived from any other source. Society at the present time is going through a period of readjustment with regard to sex activities; and the tendency is to make little of sex differences, perhaps with the idea of helping to remove prejudice against the wider activities of women. The reaction against the old idea of feminine inferiority may have carried us too far towards the idea of similarity or identity of traits between the sexes. Whatever the pronouncement of the laboratories may be the final decision concerning the individual characters and aptitudes of the sexes will be made through the struggles and exactions of economic life. And the probability is that sex differences will prove to be sufficiently well defined to lead to a clearly marked division of labor in industry.

The Quantitative Theory of Sex. The present tendency among biologists is to regard sex as a quantitative as well as a qualitative distinction. Sex is now described as the expression of differences in metabolism, and these differences may be of varying degrees. At the extremes in the scale of metabolism are to be found individuals showing the most marked manifestations of masculine and feminine qualities. Between these extremes are all grades of sex manifestations, — males with various feminine characteristics on the one side, and females with masculine qualities on the other; and on the dividing line appears what has recently been called an “intermediate sex,” or, more technically, intersexes, and these are much more common than is generally supposed. This biological theory of degrees of sex quality is in close accord with the results of psychological tests. If curves showing sex characteristics are plotted they are found to overlap to a marked degree.¹ The interpretation is that individual differences within either sex are much greater than is the difference between the mode or average of the two sexes. Possibly if tests could be made on selected individuals showing extremes of metabolism, the result would be more instructive in revealing true sex differences than tests on groups of the sexes taken at random without reference to the degree of metabolism which they represent. The most striking result of the psychological tests thus far made is to prove the continuity of traits from one extreme of sex to the other extreme, and not to prove that no considerable difference exists between the most completely differentiated specimens of the sexes.

Evidences of similarity of traits in the two sexes have been received with satisfaction by the feminists as a vindication of their demand for freedom and independence; but similarity in the sexes is rather to be regretted than otherwise. Women possessing masculine traits may be successful in a wider variety of occupations; but extremes of metabolism, which mean complete differentiation of sex, lead to greater sexual attraction. Although economic requirements may be satisfied by similarity of traits and independence of the sexes, racial requirements are

¹ See Thorndike, *Individuality*.

best met by complementary traits and interdependence of the sexes. And economic adaptations are temporary while racial needs are permanent. Imperfect differentiation of sex is a social misfortune, and not an end to strive after.

Social Aptitudes of the Sexes. The physical and mental characteristics of the two sexes are sufficiently well differentiated to enable us to make tentative deductions concerning their relative aptitudes for different departments of social life. The strength of the male, his superior ambition, aggressiveness, and desire for mastery, make him the more active agent in the conquest of nature and the natural leader in the organization and conduct of economic life. On the other hand the physiological specialization of the female for child-bearing necessarily imposes upon her the burden of the early care of the young. And her greater patience, sympathy, and affectability indicate that she is also better endowed mentally to care for dependents. The female has stronger racial instincts than the male, and when she follows these instincts she will necessarily be precluded from a degree of activity in economic life equal to that of the male. The female may be looked upon as a sort of reserve force in society for the benefit of the race. Inasmuch as man is the economic agent, the benefit which society derives from his activity is more immediate and evident. The advantage derived from the special contribution of the female is realized only in the future, manifesting itself from generation to generation. But, inasmuch as the future is ordinarily undervalued as compared with the present, the female has never been so highly prized for herself and for her labors as has the male. As peoples become more easily able to satisfy present wants, they give more consideration to the future and to the welfare of coming generations; and in so doing they tend to elevate the position of woman and to exalt the value of her work.

As a general principle it is not economical to employ female energy in the work of adaptation to the environment, because, if so used, it may be to the detriment of the coming generation. However, there are certain emergencies in which female energy may be directed into economic lines with profit to society. In case of extreme poverty, or in periods of great stress or danger,

all available energy should naturally be utilized. To be sure such expenditure of the entire social energy may still be detrimental to the rising generation; but the alternative of trying to conserve female energy would result in increased poverty and so would be even more injurious to the young. The fact is that a society situated in a poor environment cannot adequately care either for the present or for the future generation. The problem which every society is continually called upon to solve is that of the relative importance of present as compared with future needs, the problem of spending *versus* saving; but for the poor society the solution unquestionably demands an excess of present expenditure for the best interests of old and young alike.

Another situation which permits the expenditure of female energy for immediate needs is found where any kind of social readjustment results in a lower rate of increase in the population. If the birth rate is lowered some of the energy designed for reproduction is released, and such energy instead of being wasted may properly be employed for immediate needs. In this way readjustment is more speedily accomplished.

This fundamental specialization of the sexes, the one for economic and the other for racial needs, is obvious; but the existence of minor differences in sex characteristics is less evident, both as regards degree and origin of differentiation. Whether apparent variations are derived from physical organization or result from mode of life remains an open question. For example, in social life in the narrow meaning of the term women seem to feel more keenly than men the competition of individuals for position and rank. The underlying motive for such competition is the desire for social recognition and for social supremacy; and the means to the end are found in numberless forms of rivalry, such as competition in dress, correctness in ceremonials, and elaborateness of entertainment. The greater interest of women in social life may no doubt be traceable partly to mental characteristics, but probably it results chiefly from her mode of life. Men find scope for their competitive instincts in economic life and women seek expression for the same instincts in social life.

Sex Differences in Cultural Activities. On the intellectual and cultural sides of life differences of interests and aptitudes will probably always exist. Women show a higher degree of appreciation of art in its various forms than do men, though this superiority does not extend to artistic achievement, for thus far men have shown greater originality and creative ability in practically all departments of art. But on the average women can be relied upon to demand more beauty in their immediate surroundings. Superiority in artistic appreciation is due partly to mental traits, for the senses are usually slightly keener in women, and the emotional nature to which art makes its appeal is on the average more highly developed in them. But in addition to intellectual differences, mode of life has had much effect on the relative strength of the artistic interests. The average man who spends his days in factory or workshop would be almost certain to have his senses dulled to the appeal of art, while women who spend more time at home in residential districts would at least have the opportunity to keep alert to artistic impressions.

Women also show a stronger religious inclination than men, partly for the same reason that they possess keener artistic appreciation. Their emotional nature finds an outlet in religion as well as in art. But the smaller degree of independence and self-assertiveness in the female causes her, to a greater extent than the male, to seek support and consolation in religious belief. Possessed of a more conservative type of mind, women also chafe less at unchanging doctrines.

On the other hand scientific knowledge and achievements offer stronger appeals to men. Here again the difference is due partly to mental traits. Man's inclination for experimentation, his ingenuity, and mechanical ability, would naturally arouse his interest in positive knowledge and probably make him more proficient in research. But any special technical aptitude which he may possess has been strongly supplemented by particular masculine interests. Economic need has always acted as the strongest incentive to the pursuit of scientific knowledge, and consequently it has been of immediate advantage to the male to cultivate the sciences. His special interests have probably

attracted him to the natural sciences more than to the social sciences, which are not cultivated primarily for economic advancement. Inasmuch as women are strongly interested in persons, and as they have acute sympathies and interest in racial betterment, they are more active in the social than in the natural sciences.

No general statement can be made concerning the relative position of the sexes in moral attainment, for morality, like intelligence, is complex and a general comparison would not be feasible. To be sure, we do estimate individuals with regard to general morality just as we judge them with regard to general intelligence; but detailed investigation would show that moral standards vary in different lines of conduct just as ability varies in different lines of mental activity. The attempt to treat morality as a single character is probably responsible for the divergent opinions writers express concerning the relative morality of the two sexes. If moral tests could be made after the manner of intelligence tests they would probably show that each sex excelled in those lines of activity in which it was most interested. However, successes are always accompanied by failures. Wherever the struggle is keenest the unprincipled will inevitably try to gain their ends by vicious methods, so that immoralities are more pronounced, just as virtues are, with each sex in those activities in which its average standards are highest. And, inasmuch as failures are the more obvious, the impression might be gained that each sex showed inferior instead of superior standards in its particular field of action. Yet such is not really the case. Men have probably acquired higher standards in those virtues essential in business relations, such as honesty, honor, and truthfulness; but the reverse qualities are also more common among men. Similar virtues among women appear to conform more closely to the average, but women are, so to speak, unseasoned. They have not been tested by trial and experience and are therefore more negative in character. Women probably have higher standards of morality in matters relating to the family, though even here the frequency of lapses from virtue is impressive. Virtues of an aesthetic nature reach higher levels in women than in men. The test is the general judgment

of society, which is much more shocked at a display of rudeness or vulgarity in women than in men. It expects a greater degree of refinement in women, and it relies upon them to defend and conserve our scant accumulation of the social graces. Much of the objection to the spread of the so-called male vices among women is based on aesthetic rather than on moral grounds.

Conclusion. A study of sex differences leads to the conclusion that they are fundamental and permanent, though modern investigations lend no support to the idea that the sexes represent different degrees of endowment or ability, nor do they furnish any foundation for the theory that the female is an undeveloped male, intermediate between child and man. The modern theory is rather that male and female represent a similar quality of raw material, but that this material has been thoroughly tinged or permeated with sex, just as a fabric may be dyed one color or another. Furthermore maleness and femaleness are not widely distinct and contrasting qualities. They are rather endowments of varying degrees of intensity, so that gradations of sex are to be found showing varying degrees and combinations of the original qualities. It is as though the extreme manifestations of sex were represented by two distinct colors, such as yellow and blue; but that there were other intermediate manifestations such as would be represented by varying shades of green.

Original sex differences may be emphasized and developed by dissimilar training and modes of life, or they may be diminished, though not effaced, by means of similar education and occupation. The original sex impulse in individuals tends to make of them dissimilar and complementary beings, and dissimilarities appear to strengthen sex attraction. Therefore if the modes of life of the two sexes grew to be so similar that differentiation in traits seemed to be gradually disappearing, the relationship would readjust itself through sexual selection. Women possessing the more masculine qualities would be rejected in favor of those with feminine traits. In the long run sexual attraction, and the choices due to it, will serve to perpetuate sex differentiations in spite of any temporary influences tending to diminish it.

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CHAPTER XVII

SEX AND PROGRESS

The differentiation of the human species into two sexes with dissimilar characteristics has had a marked effect both on the social organization and on the method of progress. Sex differentiation, not of noteworthy advantage among the lower organisms, appears increasingly beneficial as the sexes become more and more specialized in the higher grades of animal life, until in the human species it becomes an indispensable condition of survival and progress. The advantages are both biological and social.

Biological Effects of Sex. *Produces homogeneity in the species.* From the biological point of view bi-parental reproduction has a different effect upon the species from what it has on the individual. The effect on the species is to produce homogeneity. Variations from the ancestral line of each parent are combined in the offspring; and the continual crossing of lines generation after generation tends to distribute variations throughout the species. If inheritance were through one parent only, characters existing in that line alone would be transmitted. One valuable variation might occur in one family and another in a different family, and each family would transmit its peculiar characteristic directly to its offspring; but several advantageous variations could not be combined and transmitted to the same individual. Unless all the variations happened to occur spontaneously in each family line, families would come to possess quite different characteristics; and a species would tend to become broken up into innumerable sub-species or varieties, just as isolation causes a language to be broken up into dialects. Sexual reproduction is the connecting link between family lines. It spreads variations and produces general uniformity within the limits of free association.

Accelerates progress. This process of combining several favorable variations in the same individual through bi-parental reproduction obviously accelerates progress enormously. Efficiency in human beings depends upon the possession of a combination of favorable traits; but if ancestral lines possessing varied traits could not be crossed, the fusion of several characteristics would have to wait for spontaneous variations, which might never occur. In providing a certain and comparatively rapid method of disseminating desirable traits throughout the species, bi-parental reproduction assists progress by increasing enormously the number of individuals endowed with a multiplicity of useful characters. Further progress is aided also through the very uniformity which bi-parental reproduction creates in the species, because comparative similarity in individuals favors association, while dissimilarity checks it. The diversities in family lines which would arise from a-sexual reproduction would be so great as to interfere with normal association.

Limits the range of variations. In addition to producing homogeneity in the species sexual reproduction tends to limit the range or extent of variations. Under a-sexual reproduction a variation once started might continue indefinitely, limited only by the possibility of adaptation to the environment. In bi-sexual reproduction, however, variations from the norm are checked by crossing with other individuals who do not possess the exceptional trait, or who possess it in a small degree. Extreme variations in bi-sexual reproduction are obtained only by continual selection of the same trait through both parents, and this does not happen in nature where random mating is the rule. A-sexual reproduction therefore favors extreme variation and the production of new species, while bi-sexual reproduction resists excessive variations and continually forces diverging individuals back to the normal. The former type is the more variable, the latter the more stable.

Produces heterogeneity in the individual. Heterogeneity in the individual, in contrast to homogeneity in the species, is the product of sexual reproduction. It is evident that children inherit characters from both parents and in varying combinations, so that they differ from one another as well as from their parents. Con-

tinual crossings of family lines produce fresh combinations in the offspring in endless variety. No two individuals are ever exactly alike, though extreme differences within the limits of intermarriage tend to be obliterated. Variety in uniformity is the result of bi-parental reproduction, and this combination also provides the condition of progress. It should be clearly understood that sexual reproduction does not itself cause variations. It merely distributes the variations that chance to occur. Heterogeneity in the individual is not the result of new variations, although variations may occur in any individual; it is rather the result of new combinations of traits which already existed in his ancestors.

Invigorates the species. Another biological effect of sexual reproduction is that it serves to maintain the vigor of the species. The crossing of strains seems to revitalize declining stocks. Even unicellular organisms, like the amoeba, after losing vitality and power of subdivision have been known to regain their vigor by uniting with other cells. It is not to be understood that degeneracy necessarily results from reproduction through budding or self-fertilization, for many lower forms perpetuate themselves in this way. But the complex organizations of higher animals are always liable to deterioration, and self-fertilization would tend to perpetuate or even increase a weakness; whereas crossing with another line which has not developed the particular defect would tend to efface it, because positive or stronger characters tend to dominate weaker characters.

The same principle in less extreme form is illustrated by the difference in the results obtained from in-breeding and from out-breeding. In-breeding is not necessarily harmful, at least for a few generations. It unites and therefore emphasizes similar traits derived from related parents. The outcome depends entirely upon the characteristics of the parents. If they possess superior traits the marriage of relatives may be highly desirable. If they carry inferior or degenerate traits in-breeding is always objectionable, as the weaknesses will be accentuated. It is this probability that weak traits may be inherent in a particular family line, though perhaps not manifest in the individual, that makes the marriage of near relatives unsafe. In-breeding in a strong line,

moreover, while it may produce superior offspring temporarily, becomes hazardous if long continued. Unless natural selection acts very strongly, and it does not in the human species, unfavorable variations are bound to occur and their evil effects can be avoided only by cross breeding. It is this danger of deterioration in one trait or another which sexual reproduction helps to avoid. Superior men are produced by a combination of superior traits in the parents, and such a combination, it is true, may be brought about by close in-breeding within a family line. In fact history is full of such instances. But grave danger also attends the continuation of such in-breeding. Cross breeding is usually necessary to preserve strength and vigor. In the majority of cases and in the long run it is safer to unite different family lines having superior traits, provided these lines do not represent too extreme racial differences.

Social Results of Sex. *It ensures association.* Besides these purely biological results there are a number of social, or combined social and biological, effects of the existence of sex. The first of these is that sex ensures association, for the sex instinct itself leads to some form of family life. Now association was the chief cause of man's superior brain development, and it is moreover always an essential condition of progress. In the earliest period of human life, and perhaps also among the progenitors of man, the sex instinct brought about association of adults when the struggle for life might have caused isolation. In other words, the primitive family served as the nucleus of early group life. Satisfaction of economic and other needs would require association in more advanced societies but in early times sex desire was the only guarantee of association.

In modern life, where association is assured by a variety of motives, sex still continues to contribute an important element both to the breadth and the intensity of association. In all stages of development the family is the center of the most intense and intimate social relation; and the mental and moral discipline derived from it, especially during the early years of life, can never be fully supplied by any other institution.

Not only within the family is this intimate association stimulating, but in larger groups also association derives interest and

zest from the mingling of the sexes which would not be possible with one sex alone. Social life for its own sake is much more common and is more stimulating in all countries where the sexes mingle on terms of comparative equality, and this form of association develops and refines the social instincts more than would the casual association which occurs in connection with other pursuits. Sex, therefore, has been an indirect and powerful agent in stimulating and perfecting intellectual, social, and moral qualities through the particular types of association inevitably resulting from it.

Permits division of labor. The result of the differentiation of sex most evident to the ordinary observer is that it provides a natural basis for division of labor. The physiological differentiation of the sexes necessarily throws upon the female the work connected with the early care of the young; and therefore it naturally devolves upon the male to provide for the physical needs of the family, and when necessary to defend it from attack. Such a division of labor is essential to the best interests of the race, for it increases the chances for the survival of offspring. Only in the most favorable environments could the same individuals uniformly provide for their own needs and at the same time care for the young. The advantage derived from this sex form of division of labor has increased steadily as the period of infancy has been prolonged. In fact under modern conditions the care and training of children up to the period of self-support requires the contributions of many more persons than the two parents.

In addition to this fundamental form of division of labor based on physical differences, minor forms of division of function based primarily on psychological differences are to be found in all departments of social life. These minor diversities have already been suggested in the analysis of the characteristics and aptitudes of the sexes in the previous chapter and need not be repeated. In present day society attention is centered on the adaptability of the two sexes to various spheres of economic life. And in time probably a rather complex division of employments will be worked out utilizing the traits peculiar to each sex in such a way as to lead to the highest degree of productive efficiency.

Facilitates the acquisition of useful characteristics. Another advantage of the division of the sexes is that certain traits may be more easily developed and retained by the race as a whole, if there exist two sexes dissimilar in character and modes of life. If half the race leads a different life, and especially a more sheltered life, from the other half, a larger number of the gentler traits essential to a high stage of civilization may be developed and transmitted in some degree to both sexes alike. Such characteristics as the greater strength and initiative of the male and the greater affectability of the female are probably traceable to their biological natures; but other traits not necessarily inherent in either sex are more easily acquired by one sex than by the other, partly on account of original sex characteristics and partly on account of mode of life normally resulting from these characteristics. Humanitarian traits are not only more naturally acquired by the female, they are also more easily conserved by her in time of stress. During a period of prolonged war, or during a time of extreme want, the demands of self-preservation might swamp the gentler virtues, if they were not kept alive in the female through her efforts to protect her offspring.

Sexual Selection. And finally, the existence of sexes stimulates progress through a new form of selection known as sexual selection. Sexual selection, according to Darwin, refers to the "advantage which individuals have over others of the same sex and species solely in respect to reproduction." Among lower animals this advantage may be obtained in two ways. Individuals of one sex, usually the male, may succeed in killing or driving away rivals, or they may be more successful in attracting females through the display of secondary sexual characters. Inasmuch as pronounced secondary sexual characters usually indicate vigor, the latter method as well as the former results in the mating of females with superior males. Therefore sexual selection in its normal action supplements natural selection. Natural selection secures the survival of the fittest within a generation, while sexual selection serves to perpetuate superior qualities from generation to generation.

In the human species sexual selection is more complicated;

and a complete analysis of the results arising from the pairing of the sexes requires that a distinction be made between sexual selection and a related process called sexual mating. Sexual selection in its normal action means a selection for marriage of individuals of both sexes possessing superior racial qualities. Sexual mating means the ideal pairing of those individuals who possess these superior qualities. Sexual selection implies the rejection of individuals unsuited for marriage. Sexual mating involves no eliminations. It follows sexual selection and aims at superior unions among superior individuals.

The general function of sexual selection in the human species is the same as that among the lower animals; but the process itself becomes much more complicated and, unless consciously directed, is a very imperfect agent in progress. In two important respects the process in advanced societies is in striking contrast to that among lower animals. Among many of the lower animals and in polygynous human societies, the male is subjected to the process of selection to a much greater extent than the female. But among monogamous peoples both sexes undergo the eliminative process to approximately the same degree, and this fact makes it possible to extend and accelerate the gains to be derived from it. Among human beings again the basis of selection is much more complicated than it is among the lower animals. With animals it depends almost entirely upon strength and vigor; but with human beings it is determined by a complex of physical and mental traits which together make up the personality. Sexual selection therefore can never be very precise in its action. While many desirable traits may be chosen these may be so combined with undesirable traits that the latter cannot always be eliminated. The individual is such a complex of attributes that all that sexual selection can do is merely to favor the more important ones; and those deemed important will vary with the needs and ideals of the time.

Sexual selection is governed by the ideals which each sex forms of the other; and, if the race is to profit from this form of selection, these ideals must represent qualities which are advantageous. Therefore, since social needs change with changed social conditions, sex ideals should be capable of adjusting them-

selves gradually to new needs. Specific traits will of course always be estimated differently by different individuals; but all the traits idealized should possess a survival value. However, racial values and survival values do not absolutely coincide since the range of traits adapted to family life is somewhat narrower than the traits available for social life. In other words, many individuals not suited to family life may perform very useful social functions. Individuals selected for marriage should ordinarily possess characteristics suited for the two purposes of marriage, normal life of the sexes in common and parentage. Furthermore the sets of traits essential to these two purposes are not absolutely identical. The first purpose of marriage requires that individuals should be pleasing to the opposite sex, and the second requires that they should possess a good heritage and also strong parental instincts. It is evident that many persons may lack one or another of these characteristics without being incapacitated for social duties.

Extent of Sexual Selection. It is impossible to estimate accurately the number of persons in any society who will never marry; but the numbers reported as single or married at various ages are of significance and will suggest a sufficiently close approximation. Of course there is no age period which accurately divides the permanently single from those who will marry; but the age of thirty or perhaps thirty-five, would approach nearest to such a division. In 1910, of the population 35 years of age and over, 12.2% of males and 9.9% of females were reported as single. And of the population 30 years of age and over, 14.9% of males and 10.5% of females were single. The latter period gives an appreciably larger percentage of males but only a slightly larger percentage of females than age 35. After the age of 30 for women and 32 for men, the proportion of single does not vary greatly, though it declines rapidly for adults up to those ages. Of course many persons over 30 years of age, especially males, will marry; but probably that number is more than offset by the number of persons under 30 years of age who will never marry. It seems probable, therefore, that the proportion of single over 30 years of age would be an underestimate rather than an overestimate of the number who will never marry.

In the older section of the country the proportion is still higher. For example, in Massachusetts, of the native born of native parentage 35 years of age and over, 12.9% of males and 17.5% of females are single; and in the city of Boston 19.6% of males and 23.9% of females of the same class in the population are single. The extent of sexual selection therefore varies appreciably with social conditions. For the country as a whole it is no exaggeration to say that at least 10% of the women never marry. And in the Eastern states where competition is keener, and where native women are more numerous than men, the number remaining permanently single may rise to 25%. Mr. Robert J. Sprague estimates that about 15% of native women do not marry during the child-bearing period. In European countries the number is still higher. It is said that in England 25% of the adult women never marry. And Pearson makes a rough calculation that from 20 to 30% of women in other European countries never marry.

Thus while it is evident that sexual selection is a strong force in the population as a whole, its results fall even more heavily on the superior than on the inferior social classes. Bertillon gives the marriage rate in three European cities according to economic status, showing that it varies quite uniformly with wealth.¹

TABLE I

MARRIAGE RATES PER 1,000 MEN OVER 20 AND WOMEN OVER 15 YEARS OF AGE

Character of District	Paris 1886-95	Berlin 1886-95	Vienna 1891-97	
			<i>Men</i>	<i>Women</i>
Very poor.....	29.1	44.0	90.1	67.0
Poor.....	27.9	44.4	80.6	52.7
Well off.....	24.7	36.3	84.0	48.9
Very well off.....	24.5	26.5	71.6	40.7
Rich.....	21.0	26.0	56.6	28.7
Very rich.....	21.1	20.5	43.4	19.1

In the United States a number of studies have been made of the marriage and birth rates of college graduates, and all indicate that a much larger proportion of college graduates remain

¹ Holmes, *The Trend of the Race*, p. 233.

single than the average of the population. The results of some of these studies are given below.¹

TABLE II

Mt. Holyoke	1842-92	62.1%	married
Vassar	1867-92	53.0%	"
Oberlin	1884-95	65.2%	"
Ohio State	1885-95	54.0%	"
Wisconsin	1870-1905	51.8%	"
Illinois	1880-1905	54.0%	"
Stanford men	1892-1900	73.2%	"
" women	"	48.5%	"
Syracuse men	1852-1901	81.0%	"
" women	"	57.0%	"
Harvard	1851-90	74.0%	"
Yale	"	78.0%	"

The indication is that about one-quarter of the men and from one-third to one-half of the women never marry, though some of the figures include recent classes so that the proportion of married will still increase to some extent.

According to a study made (in 1895) by Miss M. Shinn,² more women graduating from coeducational institutions marry than those graduating from women's colleges. And a fact of equal significance appearing from this study is that women from coeducational colleges marry at an earlier age.

TABLE III

MARRIAGE RATES OF COLLEGE GRADUATES

Age	Coeducated	Separate
25	38.1	29.6
30	49.9	40.1
35	53.6	46.6
40	56.9	51.8

From such estimates as these one is forced to conclude not only that sexual selection is an active force in modern society,

¹ See Popenoe and Johnson, *Applied Eugenics*, Ch. 12.

² *Century Magazine*, October, 1895.

but that it is excessive for the mere purpose of eliminating the unfit; and, therefore, that from the purely racial point of view the marriage rate might advantageously be raised. However, the mere intensity of the selective process would not present a serious problem, if it always acted with precision and uniformly eliminated those least fitted for married life. Although no exact estimate of the accuracy of sexual selection can be made, casual observation is sufficient to convince one that the selective process is extremely faulty from the point of view of social utility. While it may be true that the majority of the worst do not marry and a majority of the best do marry, so that the average of the married is superior in quality to the average of the unmarried, it must be admitted nevertheless that many persons entirely unfitted for family life marry and become parents, and many persons who possess to a reasonable degree at least all the traits requisite for marriage remain single. Although the results of sexual selection cannot be entirely condemned, there is much room for improvement. And the perfection of the operation of this important form of selection would surely be a great stride in progress.

Causes of the Defects of Sexual Selection. *No restraint upon the unfit.* A variety of social conditions interfere with the proper action of sexual selection. For instance, social stratification resulting in the partial segregation of the degenerate and their consequent intimate association is perhaps the chief cause of the marriage of the unfit. Although the defective and the degenerate are usually rejected by the normal, inasmuch as they are not eliminated, nothing prevents them from selecting one another. In the present form of social organization there seems to be no way of avoiding this evil except by compulsion. Society must either restrain the individuals or forbid their marriages.

A narrow range of choice. Perhaps the chief obstacle to the marriage of the normal in society is restricted range of choice. In this discussion the unmarried have been referred to as those who are eliminated or rejected through the selective process; but these terms are to be interpreted in the technical sense only. It is quite undeniable that many of the unmarried are rejectors rather than the rejected; and the reason often is that

their circle of acquaintance is too limited to bring them into contact with persons of the opposite sex who fulfill their ideals. In order that sexual selection should have a sufficient range of action the circle of acquaintance should be broad enough to include at least a representative number of the opposite sex. A more restricted range of choice might result in the elimination of the best.

Restrictions to sexual selection may be physical, as is the case in rural districts where the population is so sparse that few eligible persons are within the range of ordinary acquaintanceship. Or the restrictions may be social, as often happens in cities where the population though physically dense is socially isolated, because facilities for social cohesion are scarce. Young people from rural districts migrate to cities and lead lives quite as devoid of normal companionship as is life on the farm. Cities are often conceived of as aggregations, composed of all kinds and conditions of people associating more or less intimately and amalgamated into a single social unit. Therefore the city is supposed to offer limitless opportunity for association and companionship of individuals of like kind. On the contrary cities are composed of an indefinite number of detached social groups, the members of which have little knowledge of, or sympathy with, the life of the other groups. And these groups are in turn composed of smaller circles or of individuals whose social opportunities vary greatly, some having fairly wide ranges of acquaintance and others lacking normal companionship, especially with those of the opposite sex. In comparatively few of these groups do individuals lead complete and normal social lives. Under such circumstances it is not surprising that there should be little opportunity for marriage for migrants to cities, even though many represent excellent stock.

It is of course true that marriage among the migrant class is often complicated by the question of income. But this factor need not be discussed here, for it involves the purely economic problem of wages. It is evident enough that low wages act as a deterrent to marriage, but with the majority of the unmarried in cities the economic is not the only obstacle encountered.

Although the problem of desirable marriage is of the utmost

importance to the individual and is also of consequence to group welfare, society seems to think it suitable to leave mating to chance acquaintance. Indeed it makes a pretence of being scandalized at any active intelligent effort to extend and perfect sexual mating. If facilitating acquaintance between the sexes for the avowed purpose of promoting marriage is indecorous, perhaps at least social centers could be established for the purpose of promoting normal social life, and this would lead to wider acquaintance and indirectly increase the marriage rate.

Inferior ideals. Another important factor in sexual selection is the character of sex ideals, which should be an active force in determining proper standards of choice. In order to be effective these ideals, as has already been said, ought to embody characters having a survival value for the race. If the traits preferred are not adapted to existing social needs, sexual selection will not be conducive to progress. In many ways sex ideals fall short of adequate standards of excellence. For example, sex ideals have a tendency to lag behind social needs, and preference is often given to qualities whose social significance has been greater in the past than now. Again, both sexes are too greatly influenced by minor ephemeral qualities which take their fancy, and they ignore the more essential and enduring traits. Another defect, so obvious as to require only passing mention, is that individuals for one reason or another actually fail to choose in accordance with their own ideals. An example of the first defect is the tendency shown by women to lay too great weight on physical qualities such as size and strength. Formerly such physical qualities were extremely important both for fighting enemies and for conquest of the environment and were therefore rightly idealized; but with modern methods of production, with competition in a dense population, intellectual and moral qualities are of much greater significance. Of course physical qualities, in so far as they indicate health, should always hold a prominent place in social ideals; but mere physical strength no longer has a survival value anywhere nearly equal to that of intellectual vigor. Another mistake in the choices made by women is that, as they are very susceptible to pleasing address and social polish, they often mistake such external amenities for the more funda-

mental qualities of personal culture and social adaptability. It is a matter of regret also that women are likely to accept evanescent social attainments for the more abiding moral qualities. True social and moral qualities are of great value, particularly in a complex social life, and they are suitable traits for idealization; but under existing conditions they are likely to be held subordinate to more volatile qualities that are more immediately captivating.

Men are noticeably at fault in laying too much stress on beauty. To be sure, beauty interpreted in a broad sense becomes a perfectly legitimate ground for choice because it indicates health and personal charm, both of which have survival value. With this ideal in mind, Mr. Knight Dunlap¹ has made a strong plea for a more general recognition of beauty as the proper standard for choice, but he distinguishes carefully between beauty and mere prettiness. If beauty is used in a sense broad enough to include most of the virtues, naturally it becomes a reliable criterion of worth. Men are, however, influenced too much by mere prettiness of feature. Marriage would be more successful and enduring if greater stress were laid on domestic qualifications, and if the lasting value of general intelligence and efficiency were more commonly recognized.

A difficulty confronting sexual selection, which is practically unavoidable, arises out of the fact that the previously mentioned qualities which represent marriage fitness, namely, personal attractiveness, good heredity, and parental qualities, are not correlated and therefore are not always present in the same individual. This being the case, usually those qualities comprising sexual attractiveness are the ones which make the strongest appeal and determine choice. Sexual attractiveness itself is a complex of qualities difficult to evaluate, part of them possessing permanent worth and others having only slight social merit. When the problem is one of that subtle and elusive quality of sex connected with the rate of metabolism it is beyond analysis; yet it cannot be ignored. Where sex is imperfectly differentiated, the nearer an individual approaches the line of division repre-

¹ Personal Beauty and Race Betterment.

sented by inter-sexes, the less attractive to the opposite sex that individual is. And doubtless it is in accordance with the best interests of the race that the more sexless should be rejected. A deficiency in sex nature is not easily perceived by members of the same sex; and consequently they are continually mystified by the reactions of the opposite sex. The sexes will always be enigmatic to each other, because each has a sense perception lacking in the other.

Other causes of lack of attractiveness between the sexes are not fundamental, and they could and should be removed by better training. In many cases individuals, either from excessive diffidence or from failure to understand the opposite sex, make no effort to attract, or at least fail to do themselves justice. Such social deficiencies are likely to result in no marriage at all for the woman and in imperfect mating for the man. It is particularly important that girls should cultivate responsiveness and adaptability towards the opposite sex. A gain in mutual understanding results unconsciously from early association of the sexes even in childhood, and more could be gained by conscious endeavor to comprehend the characteristics of the opposite sex and learn the art of companionship. "Study to please" the opposite sex, might well become a more popular course in society's curriculum. But there is danger in advocating such a course because it is often interpreted to mean "study to deceive" the opposite sex. Advances between the sexes resemble too often those between states. Preliminary overtures are conducted by a species of deceit, which in the one case as well as in the other might be dignified by the term diplomacy. And with the sexes as with states, when idealization is promoted by diplomacy it is likely to be followed by realization and the beginning of hostilities.

Another difficulty in improving sexual selection through perfection of ideals is that the traits which charm in youth are not always those which satisfy at maturity; and this is the reason why the early cords which bind turn later to discords which repel. A difficulty such as this cannot be obviated entirely; but the fact suggests that youthful choices and long engagements are not usually wise. Both sexes should remain free until near the

time of marriage. On the average choices made after the period of mental maturity, which differs greatly with different individuals, are likely to prove more permanently satisfactory than youthful choices.

Selection not always based on personal qualities. A minor obstacle to the perfection of sexual selection is to be found occasionally in the influences of wealth and social position which sometimes enter into choice. Occasionally inferior persons inherit wealth and are thereby rendered more attractive than they otherwise would be. Whenever anything external to the individual becomes the object of sexual choice in place of personal qualities, the beneficent effect of sexual selection is neutralized. Occasionally, though not frequently, wealth may even prove a hindrance instead of an aid to marriage, more particularly with women of high ideals, for position sometimes isolates them from men possessing acceptable personal qualities.

Religious celibacy. Finally sexual selection may be seriously thwarted by the existence of customs, or ideals, or even social conditions, opposed to marriage. Celibacy, whether voluntary or not, is racially detrimental whenever it attracts superior individuals; and as a matter of fact it has never been to inferiors that celibacy has had a strong appeal. The most common form of voluntary celibacy is that of religious orders, which for centuries have been prevalent both in Europe and in Asia. De Lapouge estimates that celibate religious orders must include at the present day not less than twenty millions of persons, two-thirds of whom he attributes to Asia. Now although these celibates come from all classes in the population and do not represent one element alone, it is probably incontestable that they represent the most desirable elements of each class. Physically they are not below the average of their class, and intellectually and morally they are certainly above it. Voluntary religious celibacy, therefore, must be included among the conditions opposed to ideal sexual selection for it excludes the superior instead of the inferior from the marriage relation. In fact its results are probably a little more specific than this statement would imply, for it eliminates not merely those superior in general, but those of a particular type of mind. The selective results are magnified

because they represent the more idealistic elements in society. De Lapouge maintains that the sons of Protestant clergymen and Jewish Rabbis have risen to eminence to a much greater extent than the average of the population; and the supposition naturally follows that the Catholic populations have been deprived of an element of equal value through the celibacy of their clergy.

The religious advantages ascribed to the celibacy of the clergy need not be discussed here. They may or may not be considerable. A general evaluation of the total effects of celibacy is not intended. The racial effects only are pointed out; and, inasmuch as these are detrimental, advantages in other directions must be sufficiently extensive to offset the racial loss if the institution as a whole is to be commended.

Inequality in numbers of the sexes. Conditions similar to those resulting from voluntary celibacy appear whenever one sex is decidedly in the majority from any cause whatsoever. Prolonged war, reducing the proportion of young men through death and disability, and leaving an excess of women, subjects them to a much more intense action of sexual selection than it does the men. And, inasmuch as soldiers represent the superior element from each social class, many superior as well as inferior women will inevitably remain single.

Migrations result in an excess of females in the old countries and in an excess of males in the newer districts. And although to some extent the males may eventually obtain wives from their native lands, the unequal distribution of the sexes must decrease the total number of marriages. Furthermore the disadvantages of inequalities in the numbers of the sexes are exaggerated by the existence of narrow social groups with little free association. For example, in our eastern cities the relative numbers of the sexes in the total population is of little significance, because among some nationalities one sex preponderates and among others the other sex. And while intermarriages of nationalities occur they are not common enough to include the entire excess of either sex. Moreover it is probable that such intermarriages ordinarily attract the inferior rather than the superior representatives of each nationality.

Methods of Improving Sexual Selection. Although methods for the improvement of sexual selection have already been suggested in the discussion of its defects, they may be reviewed in the form of a summary. The marriage of degenerates will have to be prevented by positive state action, for no indirect method of achieving the end seems possible. This subject will be treated more fully in the chapter on Genetic Selection.

Among the conditions tending to improve the mating of normal persons, the enlargement of circles of acquaintance can partly be attained, or made possible of attainment, by improved means of communication, although improvements of this kind will be of social advantage chiefly in rural districts. However, improved means of communication will not of itself accomplish the desired results. Social centers need to be established in the city as well as in the country. These should be open to both sexes and should offer facilities for the promotion of acquaintanceship and for healthy recreation. Enlargement of association as a constructive measure, while important in many cases, is not of general applicability. There are circles in which social life is already too intense, so that it interferes with serious pursuits, and does not promote marriage. In fact there are natures upon which too intense association with the opposite sex has the effect of postponing and perhaps even preventing marriage. Nevertheless better facilities for social life are needed in many districts for the promotion of normal acquaintanceship. It should be added, however, that the purpose of wide acquaintanceship is not to provide mates for all indiscriminately, for that would defeat the ends of sexual selection. The purpose is merely to improve opportunities for those who do possess desirable traits, but who are handicapped by adverse conditions, and incidentally to provide companionship for the lonely.

Healthy sex ideals are, in the last analysis, of paramount importance and should be kept at a high standard, though they influence but little the general trend of sexual selection unless the range of choice is reasonably large. Ideals of the opposite sex cannot function as a live force, if knowledge of that sex is so limited that comparisons are impossible. The sex ideals themselves can be improved by education and training, though not

primarily by formal methods of instruction. I am not advocating a new course for the public schools. Emotional ideals are not formed by laboratory demonstrations, nor by memorizing the words of a text. They are suggested through the medium of art. More specifically literature and drama must be relied upon to instill desirable ideals into the young. It is of the utmost consequence therefore that fiction, and stage productions of whatever kind, should not become mere instruments of profit nor be permitted to seek support by stimulating the baser instincts. On the contrary, they should take the lead in educating the emotions and in constructing socially useful ideals.

Defects in sexual selection due to inequalities in the numbers of the sexes are difficult to counteract. When the inequality results from war many desirable women will never find mates and a racial loss will be inevitable. When, however, the inequality arises from migrations, measures can be taken for keeping up the associations and interests of emigrants with the home country and thereby increase the number of marriages within the nationality. Whenever one sex exceeds the other in numbers and is therefore inevitably subject to a stringent action of sexual selection, efforts should be made to broaden circles of acquaintance, thereby stimulating the selection of the best and the elimination of the least fit. But this end cannot be gained through the promotion of unsuitable or non-eugenic matches. The purpose in view in the suggestions offered has never been to compel or even to stimulate marriage in general, for usually those who do not wish to marry belong to the class who should not; but it has been rather to facilitate unions among the marriageable and to make certain the rejection of the unfit.

Sexual Mating. Ideal sexual mating must be combined with ideal sexual selection if the highest standards of the family are to be fulfilled. Of the three prerequisites of marriage already mentioned, — a good heredity, enduring attraction, and parental qualities, — heredity must be maintained for the most part by means of sexual selection, but the other two are preserved quite as much through the action of sexual mating as through sexual selection. If the individuals mating are physically and mentally suited for each other, the union will be likely to be

permanent and will at the same time afford the best conditions for the rearing of offspring. Perfect sexual mating would imply that better mates could not be found; but, considering the size of modern society, such a goal would be rather visionary. For practical purposes the requirements of sexual mating may be said to be fulfilled if the union permits the continued development of the two parties to the marriage contract and provides a proper environment for the young.

The assumption is sometimes made that heredity should be the chief concern of sexual mating. Marriage, it is said, is altogether too serious an undertaking to be determined by chance acquaintance and by emotional impulse. Individual qualities should be analyzed by scientific methods; and mates should be selected with the purpose in view of producing a superior combination of qualities in the offspring. While the object is in itself desirable, as a dynamic marriage ideal it is both unpractical and incomplete. Our knowledge of individual characteristics and of heredity is too limited to make us certain how to obtain the best offspring. We have acquired, it is true, some knowledge of the inheritance of abnormalities; but it is obvious enough that individuals with distinctly degenerate traits should ordinarily refrain from marriage anyway. But any deliberate attempt at constructive improvement of sexual mating to influence the character of the offspring by a scientific selection and combination of individual qualities would be doomed to failure. And after all, the production of vigorous offspring is not the only purpose of marriage. Instinctive attraction between the sexes is still the best known guide to successful mating; and when this does not ensure success it is not because the basis of the choice is wrong, but rather because the conditions are imperfect. Individuals may err by failing to obey their best instincts or by over-estimating trivial qualities. The solution of the problem of sexual mating then lies in the direction of perfecting, and we may perhaps say rationalizing, the system of individual choice; but it is not obtained by ignoring the factors of individual preference nor by disparaging the value of emotional attachment.

Failures in Sexual Mating. Anyone who studies the marriage problem must be strongly impressed with the number of failures and the urgent need of improving the process of mating. In endeavoring to estimate the proportion of failures one turns at once to the divorce rate; and, while this furnishes an index by no means accurate of the extent of imperfect mating, nevertheless it possesses significance. The special study of marriage and divorce made in 1906 showed that in the United States as a whole one divorce was granted to every 12 marriages; and the divorce rate, which is a clearer method of revealing the situation, was 200 per 100,000 married population; and this rate is still on the increase. This meant one divorce to every 500 persons, or to every 250 couples. If this high rate of family dissolution represented the total number of ill-mated unions, the problem of sexual mating would not be so serious; but it greatly underestimates it, for many unhappy and unsuitable marriages never come before the divorce courts at all. On the other hand, divorces are sometimes hastily granted in cases where the union was not an entire failure, although of course in none of these cases can it be said to have been ideal. Marriage success or failure is a relative matter, and the exact degree of incompatibility constituting failure is difficult to determine. Marriage is not a sudden release from care and an entry into Elysium; it is an intimate union of life and interests of two imperfect individuals, and therefore it requires mutual consideration and adjustment. Occasional friction does not mean failure, but even minor difficulties may sometimes become so magnified that they are incapable of adjustment. While marriage cannot be expected to be always harmonious, since individuals are neither perfect nor perfectly adaptable, it can be greatly improved by careful mating. Many of the apparent failures of sexual mating should really be attributed to the failure of sexual selection, for some of those who patronize the divorce courts have deficiencies which ought to debar them from marriage altogether.

Assortative Mating. While no absolute standards of desirable mating can be set up, considerable evidence has been accumulated showing that individuals marry others having similar traits, though this evidence is contrary to the popular belief that

persons of dissimilar or contrasting characteristics mate. This union of individuals with like characters is usually called assortative mating, and it is sometimes the result of choice and sometimes it is casual or accidental. Accidental similarities may be due to correlation of the similar characters with those traits which were the real objects of choice; or they may be due to the natural association of similar individuals, as is the case with defectives. It would be desirable to distinguish the different causes of assortative mating, but statistically it is impossible to do so. The figures merely record the facts. Assortative mating throws no light on sex ideals, except in those cases in which the character compared is the direct object of choice, although of course all forms of assortative mating have an influence on the family and on inheritance.

An illustration of assortative mating involving choice is found in the well-known study of a Swiss scientist, Herman Fol. He compared the photographs of 250 couples, 198 of them being young couples and 53 old, and found an appreciable resemblance in 66% of the young couples and in 71% of the old couples. His conclusion was that couples unite in accordance with the rules of conformities, and not in accordance with those of contrast; and inasmuch as the similarity in evidence was approximately the same for old and for young couples the resemblance was not, as had been suggested, the result of common life and association. Such a study has the disadvantage of being rather general in nature, dependent upon individual judgment and therefore liable to error; but it has the advantage of comparing general types of individuals rather than specific physical characters, and types are more likely to be the objects of selection.

Both Galton and Pearson have tried to ascertain the existence of assortative mating for certain measurable traits, and both found an appreciable degree of resemblance in couples for eye color and for stature. And Pearson found a somewhat smaller resemblance for span and length of forearm. These last would not of course be significant in themselves, but might represent a trait which was the object of selection, such as size. The tendency of persons of similar stature to marry was brought out also in Davenport's study of the inheritance of stature. Out of 869

matings, the union of a very short man with a very tall woman occurred but once, or one-tenth of the probable number of times according to the law of chance, and the opposite kind of mating did not occur at all. Miss Elderton has made an attempt to compare mental traits of married couples and has found a perceptible degree of resemblance in the following characters, the figures representing the degree of correlation: intelligence .33, temper .18, excitability .11, sympathy .15, reserve .27.

Assortative mating is common among some of the defective classes. Pearson found that tuberculosis occurred in both husband and wife to an appreciable extent, the correlation being .24; and he concluded that it was due to assortative mating and not to infection. His explanation was that certain types tend to mate, and some of his figures certainly support his view; but in this particular illustration mating is probably in part the result of association, for the infected of both sexes frequent the same health resorts. The congenitally deaf marry to a very noticeable extent, owing partly to association and partly to sympathy and similarity of habits. From a study of 7,277 deaf mutes it was found that of those who had attended boarding schools for the deaf, 86.2% married deaf mutes; and of those who did not attend a special school for the deaf 62.4% married deaf mutes. It is noteworthy also that the mentally defective, especially the feeble-minded, tend to intermarry; partly because of segregation and partly because they are rejected by the normal.

Another kind of assortative mating deserving mention is occupational. Since women have entered industry extensively, it has been found that individuals in the same occupations tend to marry. In a study of such marriages in Philadelphia, L. M. Marvin¹ shows that among the American population there are 2.79 times as many marriages within occupations as would take place if matings were merely a matter of chance. The fact itself is not at all surprising; its interpretation is the important point. Marriages within occupations are chiefly due to propinquity, but wherever there is free choice of occupations such marriages

¹ Publications of the American Statistical Association, 16: 131.

may indicate similarity of mental capacity and taste. For example, the rather common occurrence of marriages within the medical profession, where a very considerable specialized training is necessary, probably indicates similarity of traits, which would supply a normal basis for preference. On the other hand, marriages in manufacturing or mercantile groups, where little preliminary specialized training is required, are chiefly the result of propinquity and are of little significance in the problem of sexual mating.

Assortative mating is explained by the psycho-analysts on the ground that the feminine ideal is derived from or influenced by the mother image. Therefore if a man selects in accordance with this ideal, his wife will be likely to possess traits similar to his own. However, the mating of similars would not seem unnatural, even without this supposition concerning the source of the ideal. It seems both natural and desirable that individuals should choose mates having similar tastes and interests; and in so doing they would be selecting individuals with many mental qualities like their own. Whether or not a real correlation exists between particular physical and mental traits is not known, though according to popular opinion such is the case. Anyhow it is possible that physical and mental traits are not chosen on the same basis. The physical type preferred might correspond to the family type, and similarity in mental traits might indicate congeniality. The degree of similarity of couples for most traits is not high; but, inasmuch as assortative mating is found in the middle class where choice is supposed to be freest, the conclusion is that the mating of like with like is the natural and desirable form of mating. This conclusion is not, however, fully established yet for all kinds of traits.

From the point of view of heredity, it is evident that assortative mating must result in a stronger transmission of the similar parental traits to offspring; and therefore its desirability from this aspect must depend upon the social utility of the traits possessed by the parent.

Assortative mating should not be interpreted as a force tending to make the sexes more alike. It does not mean that men choose women having masculine traits, but rather that they choose

women having feminine manifestations of their particular traits. Take for example a physical character such as stature. A shorter stature for women seems to be a sex characteristic; and, if agreeable to both sexes, it will be continued through selection. But tall men could still marry tall women and short men short women without interfering with the relative height of the sexes. In all cases the women might be shorter than the men. Many characteristics, however, which are evidently the objects of selection, such as complexion, have no sexual significance.

Causes of Defective Sexual Mating. Conditions which interfere with ideal sexual mating are quite similar to those which affect sexual selection, and they need be restated here only as they may have new or peculiar application to sexual mating. Disabilities arising out of limited acquaintance are probably even more significant for sexual mating than for sexual selection. A narrow circle of association probably results less frequently in the union of persons absolutely unfitted to marry than in the union of persons unsuited to each other. Other things being equal the larger the circle of acquaintance the more easily will individuals find suitable mates. This is true whether marriage results from the free choice of the parties themselves, as is usually the case among Anglo-Saxon peoples, or whether it is left to the judgment of parents or guardians, as is more frequently the case in Latin countries.

The dangers arising from choices made by the immature also deserve emphasis in connection with sexual mating. The exceptionally large number of divorces, and also of suicides, among the married under twenty years of age, indicate that precocious marriages are less successful than the average. These failures are due partly to the assumption of the responsibilities of married life by persons too youthful, but are traceable also to mistakes in choice of mates because of immaturity. The same objection can be made to hasty marriages upon short acquaintance. Such marriages result from a passing impulse based upon sudden fancy before the real character and temperament of the parties can be known, and therefore the chance of mutual congeniality will be small.

The preservation by each sex of high ideals of the opposite

sex has a similar significance both for sexual selection and for sexual mating. The most desirable and lasting unions result from high sex ideals and high standards concerning the marriage relation. This view is not however unchallenged. It has been charged, for instance, that college women maintain such high sex requirements that mating is made difficult if not impossible; and that therefore the higher education of women is opposed to the interests of the race. Education probably does raise the standards of women; it would be a serious reflection upon education if it did not. It may also interfere with the subordination and docility of women and make them reluctant to submit to a servile form of marriage; but there is no evidence that it promotes ideals which make women opposed to union with equals upon equal terms. Lofty idealism is not a social malady. And when women do not marry, the blame should not be ascribed to their education, but, here again, to restricted association, which keeps them from contact with men of similar ideals and attainments. The cultivation of high ideals must be accompanied with broad association. And the economic independence of women will probably aid in bringing actual mating into conformity with the ideal. Interesting employment, affording opportunity for self-support, will deter women from ill-advised matches and will enable them to wait for congenial mates.

Methods of Improving Sexual Mating. The process of sexual mating will be improved along with that of sexual selection and by much the same means. The measures which will prove of particular significance for sexual mating are: enlargement of circles of acquaintance, postponement of choice until the period of maturity, and removal of impediments or restrictions to normal acquaintance. The first two of these ends are likely to be attained gradually through the normal course of social development without conscious effort. Enlarged circle of acquaintance usually comes with improved means of communication and with the perfecting of social institutions; but, as has been shown, there are numerous exceptions, and progress could be hastened and improvements made more general by carefully instituted reforms. It is also probable that the age of marriage, and with it usually the age of choice, is gradually deferred as

population becomes denser and economic competition keener. Advanced society calls for specialization and the supplementary training involved in specialization is inconsistent with youthful marriage.

On the other hand, it is in advanced societies particularly that social conventions arise which tend to interfere with the natural association of the sexes. When artificial conditions keep women from free and spontaneous contact with the opposite sex, men are likely to seek the companionship of women of inferior position. It is under these circumscribed relations in older societies that matches are most commonly made on the basis of wealth and social position rather than on the basis of mutual personal attraction. And whenever choices are determined by external conditions rather than by personal qualities both sexual selection and sexual mating have lost their efficacy.

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CHAPTER XVIII

THE FAMILY

The Functions of the Family. The family is an institution of primary importance in the life and development of society. When the continuity of society, or the relationship of one generation to another, is considered, the family is the primary unit or cell; but when psychological relationships are studied the individual must be regarded as the true social unit.

Although the activities of the family have varied considerably at different periods of time and in different stages of social development, two functions remain inherent in its nature. First, the family should furnish the medium for the normal and continuous development of each sex in so far as that depends upon the life in common; and second, it should provide proper care and training for a sufficient number of offspring to satisfy the needs of the social group. If it fails to perform at least one of these functions the family is not fulfilling the purpose for which it was established. Other services rendered by the family, whether economic, or religious, or educational, are either temporary or are subsidiary to these fundamental duties.

The Forms of Marital Relations. The forms of family organization have varied widely with environmental conditions and stages of culture, adapting themselves roughly to needs of social groups. Although these forms are to some extent products of local conditions, a general development may be detected over long periods of time showing progressive adaptation of the family organization for the performance of its primary functions. Notwithstanding its genuine progress, the family cannot yet be regarded as a perfected or unchanging institution. It must continue to adapt itself to new social conditions; and minor alterations which may appear in its structure should not be viewed with alarm so long as they conform to social needs. A

comprehension of the causes for and limitations of present and future changes in family relations may be attained best by a review of marriage relations as they have existed in the past and an analysis of the conditions which have caused modifications.

Marriage may be defined as the more or less enduring relationship of the sexes recognized by social custom or prescribed by law. In some societies the form of the family is merely a customary relationship and in other societies it is regulated by law. In the latter case, however, extra-legal relations are so common that they must be taken into consideration in order to understand the actual status of family life.

In classifying marriage relations the spirit of the union, as well as its external form, should be taken into consideration; and sometimes, where more than one form exists in the same society, the most commonly existing relationship is not the one most generally approved. For example, in a society where polygyny is considered the most desirable form of the family relation, it may yet be impossible, owing to external conditions, for the majority to obtain more than one wife; yet under these circumstances to classify such a society as monogamous would be superficial. Marriage is not the only institution where classification based upon the condition of the majority can be misleading. Our property system is officially one of private ownership, notwithstanding the fact that the majority of the population is propertyless.

The original relationship between the sexes in the human species is not known with certainty; but the form prevalent among many of the most primitive types of societies now existing, although varying greatly in detail with environmental conditions, may be described as indefinite sex relations. This does not mean absolute promiscuity. Regulations do exist and may be rigidly enforced, but these still permit considerable latitude in sex relations. Such primitive relationships are well illustrated in the tribes of Central Australia.¹ Here each tribe is divided into two exogamous intermarrying groups, and in some tribes these are subdivided, giving four classes. A man of one class,

¹ See Spencer and Gillen, *Native Tribes of Central Australia*; and Manilowski, *The Family among the Australian Aborigines*.

or totem, can marry into only one of these totemic groups. All the women in this group are to him "Nupa," or possible wives. He lives with one, or perhaps two of them, as his actual wife or wives. In addition to his Nupa he has a lesser right to certain other women known as his "Piraungaru"; and his Nupa may also be Piraungaru to other men. Furthermore he may lend his wives to men who are not Piraungaru to them provided they belong to the right group. Other primitive peoples have less complicated relationships, but usually the sex relations are sufficiently lax to be classed as indefinite. Progress has consisted in gradually enforcing greater restrictions on sex relations.

The second stage of family development may be called the proprietary stage. Here the sex relations are restricted to the family group; but that group varies greatly in size and the marriage bond partakes more of the character of property right than it does of free contract between equals.

→ At least three forms of marital relation occur in the proprietary stage of development, — polyandry, group marriage, and polygyny. Polyandry, or the union of several men with one woman, has two distinct forms, the Nair and the Thibetan. In the Nair form the wife lives with her parents and the husbands are received there. The husbands are not necessarily related, and the unions are often temporary, so that descent is naturally in the female line. In the Thibetan form the husbands are brothers, and the wife goes to live with them, descent being in the male line.

Group marriage means the union of several men with several women. Sometimes the men are brothers and the women sisters; but among the Todas, who furnish the best known example of this kind of marriage, the women need not be sisters. Westermarck believes that this form is an outgrowth of polyandry.

Polygyny is the union of one man with several women. The wives may hold positions of approximate equality in the family group or, as is more frequently the case, one wife may hold a superior position as favorite. This differentiation represents a step in the direction of monogamy, for the favorite wife may come to be recognized as the only legal wife.

The third form of the family, monogamy, or the union of one

man with one woman, is by far the most common. Westermarck in his "History of Human Marriage" refers altogether to about eight hundred societies in various stages of development; and among these he cites 184 cases of polygyny and 53 cases of polyandry, the rest being supposedly monogamic. Furthermore, even in polygynous societies a large number of the families are actually monogamic.

An analysis of the monogamic family in different stages of social development shows that the spirit of the union has varied so much that two forms are distinguishable; enforced and voluntary. Enforced monogamy includes those cases in which the male is unable to obtain more than one wife, either because of a scarcity of women or because of poverty of the environment which makes a larger family group inadvisable. Voluntary monogamy is attained when the union of one man and one woman is recognized by a society as the superior form of the family and is so accepted by both parties to the union. Strictly speaking, voluntary monogamy only should be included in the third stage of family development. Enforced monogamy is ordinarily proprietary in spirit and should be included under the second stage. Passing from the proprietary stage to the stage of equality is a gradual process; and, inasmuch as the spirit of the marriage relation does not always coincide with the external form, a classification which includes two independent standards cannot be exact. The following classification will, however, be sufficiently accurate for the present purpose.

I. Indefinite Marital Relations

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| II. The Proprietary Family | { | a. Polyandry
b. Group Marriage
c. Polygyny
d. Enforced Monogamy |
|----------------------------|---|--|

III. Voluntary Monogamy

Form of the Family Determined by Two Factors. In this classification the family is regarded as something more than a mere numerical relationship of the sexes. (The family is a union

of personalities, and therefore its character necessarily varies with the natures of the individuals forming the union.) Any explanation of the form of the family at any particular period, to be complete, must cover at least two factors, individual development and economic influences; although other influences, such as the character of the state, or forms of belief, have had at times a strong effect upon it. Of the two chief factors, individual development seems to have played the more influential rôle in determining the evolution of the family as far as its major forms are concerned; but economic conditions have been potent in causing minor variations in the marital relations. These two factors are not in the last analysis entirely distinct, for the character of the individual is strongly modified by economic conditions. (Nevertheless as the individual is affected by other influences also the growth of the personality may well be treated as an independent factor.)

Influence of the Factor of Individual Development. The indefinite form of sex relations is characterized by little differentiation of the individual from the rest of the group. A kind of equality exists, simply because no one has gained distinction and the group remains undifferentiated. Little wealth of any kind has been accumulated; but such as there is is usually owned in common. Individuals, like property, are not completely appropriated; and the sex relations are not fully restricted. Among no existing people, however, is the personality entirely undeveloped nor is the idea of individual rights wholly lacking; so no cases are to be found in which the sex relations are wholly unrestricted. Westermarck believes that this has always been the case; and, arguing largely from conditions among the highest primates, he maintains that the earliest form of human marriage was temporary monogamy. Although this conclusion may be correct, too much stress should not be laid on the relationships among the lower animals, for animals act according to instinct, while man must have passed through a period when he was controlled neither by instinct nor by experience and the restraint of his passions was accomplished slowly.

The change from indefinite sex relations to the proprietary family is marked by the beginnings of individual development

in the male, expressed in the form of excessive egoism. Man's attention began to be concentrated on himself and his own superiority, and, as his feeling of self-importance grew, regard for the importance of others diminished. Although this period of mental development signifies advance, it is not one which commands admiration. The personality was just beginning to be aroused from a condition of lethargy and the stimulus responsible for the awakening, in early times at least, was chiefly increase of wealth and its individual appropriation. The change in some cases was brought about by the passage of a group from the hunting to the pastoral stage of economic life. In other cases the same result was achieved through successful warfare and the acquisition of material plunder and of slaves. Always, however, the new phase of the personality has been immediately reflected in the character of the family.) The male has been more affected by new economic conditions than the female, because he has been the one to appropriate the new property and has usually succeeded also in appropriating the female for his own gratification. In the family these conditions are represented by polygyny. In it the male demands complete constancy on the part of his wives towards himself, as unfaithfulness would be an indignity to his self-esteem. The wife being property is, like other forms of property, at the disposal of the husband. The male on the other hand sees no reason to place restrictions on himself, because he is not property and the superiority of the monogamic relation is not yet recognized.

The proprietary period is characterized then by private ownership of property, the beginnings of the development of male personality, the subordination of the female, and the conception of property right in the marriage relation.

The monogamic stage of family development is characterized by a higher appreciation of the value of all individuals and by a growing recognition of the principle of equality of rights. The improvement in the position of woman and her growing independence has helped to bring about equality in marriage and has cleared the way for a higher type of monogamy. Equality of the sexes alone might mean merely equality of license; but, inasmuch as license would be inconsistent with the

welfare of the next generation as well as with the continued development of the individual, the interests of society demand that equality of the sexes should signify similarity in restriction within the marriage bond. The sexes, being supplementary in nature, normally find their highest development in the life in common; but the union to be complete requires exclusiveness. Free intimacy of the sexes is inconsistent with that form of union which makes monogamy a superior type of marriage. Therefore the highest stage of the marital relation is realized only when equality between the sexes is accompanied by complete exclusiveness in the sex relation.

The conclusion is that these general stages in the development of the marriage relation, from conditions of laxity on the part of both sexes through the period of male domination to the state of equality, are due primarily to the development of the personality. This fact is brought out both by a historical comparison of societies in different stages of development, and also by an analysis of existing conditions in modern societies; for present day societies, being composed of persons of varying stages of development, exhibit practically all forms of sex relations. Economic differences in modern societies are also extreme and deserve consideration; but the different forms of sex relations do not follow closely economic status, and therefore cannot be explained by that factor alone. The economic factor is always important, however, and the nature of its influence deserves careful consideration.

Influence of the Economic Factor. *On primitive family relations.* In the hunting stage of economic life marriage seems to be partly, sometimes primarily, an economic partnership rather than a means of satisfying the sex instinct. The wife assists her husband by carrying away or by preparing the game which he has killed; or she herself collects small animals and vegetable foods; and she manufactures utensils and performs simple domestic duties.¹ Under these conditions the economic life must determine, or modify materially, the form and character of the marriage relation. The number of wives which a man may possess will be influenced partly by his ability to secure

¹ See Lowie, *Primitive Society*, p. 66.

food; and it will depend also of course on the number of women available; but this again is sometimes related to economic conditions, for it depends upon the practice of female infanticide which is in turn regulated by the amount of the food supply. Some tribes which originally practised female infanticide have with improved conditions abandoned the custom altogether.

The duration of marriage is influenced chiefly perhaps by the presence of offspring, separation being much easier if the union is childless; but economic conditions are not without effect. Among the Esquimaux the union may be severed temporarily, if not permanently, by the absence of the male on a hunting trip. In those environments where women have economic value, that value serves as a check on divorce. Divorce is infrequent where wife-purchase is the custom, as is the case with the Basutos, the Kirgiz, and other tribes. The husband naturally hesitates to separate from a wife who possesses high economic value.

Whether the line of descent should be through the male or through the female has been determined usually by the relative economic value of the two sexes. The change from the metronymic to the patronymic method of descent was brought about chiefly by the increasing prominence of the male,—or perhaps, more accurately, the diminishing importance of the female,—as the producer of wealth and the owner of property. In all stages of culture the economic importance of woman has greatly influenced her position in the social group. Starcke says:—¹ “It is the woman’s position with respect to property which enables her to assert her equality with her husband and which finally among the Negroes and Bantus in West Africa makes the child’s descent dependent on its mother.”

A few exceptions to the indefinite type of the family occur among peoples in the lowest stage of culture, one of the most notable being that of the Veddahs, whose permanent monogamic family life has attracted wide attention among anthropologists, for the monogamic relationship is the exception rather than the rule among peoples in a low stage of culture. The explanation seems to be that the adverse conditions of the environ-

¹ The Primitive Family, p. 66.

ment have necessitated the scattering of the people in small family groups; and this separation has engendered a feeling of exclusiveness in the family circle not felt by primitive peoples living in larger groups.

On polyandry. In the second or proprietary stage of the family life, the economic influence is more complicated and difficult to analyze, although it is fully as strong. Polyandry is now considered an exceptional form of the family, traceable according to Westermarck to excess of men due to poor economic conditions and to inbreeding. To say that an excess of males is favorable to polyandry would be merely stating a truism; but to say that it is the cause of polyandry is quite a different matter. The evidence is insufficient to justify such an assertion. To illustrate the fact that inequality in the ratio of the sexes is by no means uncommon among primitive peoples, Westermarck cites many examples where males are in excess and many others where females preponderate. From the context the casual reader would conclude that the cases of male preponderance coincided with the practice of polyandry and cases of female preponderance with the practice of polygyny; but a closer analysis shows that this is not always so. Thirty-three peoples or districts are enumerated in which males are in excess; and among these are to be found fourteen cases of polygyny and twelve of polyandry, the remainder being practically monogamous. An excess of males may be regarded as a condition favorable to polyandry; but, inasmuch as polyandry is not even the most usual form of marriage in cases where males preponderate, it could not logically be accepted as the primary cause. The determining cause, at least of the most common type, seems to be property conditions. Families in unfavorable environments accumulate only small amounts of property which cannot be advantageously divided, and which at the same time cannot be cared for by the labor of one person. Under such conditions polyandry is advantageous, for it means common participation in property and coöperation in labor. The system indicates poverty as compared with peoples in rich environments, but greater accumulation than that of primitive peoples. Property conditions existing among the Thibetans, the Tirs, the Todas,

and the Lancerote are such as to give rise to a polyandry of the Thibetan type.

Polyandry does exist also as a by-product in societies practising polygyny or monogamy, chiefly on account of general scarcity of women, due to appropriation of the majority of the women by the wealthier men.

The group marriage of the Todas develops very naturally from the Thibetan form of polyandry. If the wealth of the family group permits, and if women are sufficiently plentiful, some of the younger brothers may take wives, but these new wives, like the wife of the oldest brother, belongs to all the brothers in common. Thus group marriage represents a half-way stage in progress to monogamy, tenacity of custom as well as economic advantage keeping the brothers from separating and forming independent family groups.

The form of marriage known as Nair polyandry is not true polyandry, for the husbands are not confined to the one common wife but are free to enter other polyandrous unions; consequently it is less definite than the Thibetan form and seems to lie on the border line of the indefinite family relations of more primitive peoples. However the Nairs are in a higher stage of culture than most of the peoples practising the Thibetan form of polyandry, and Letourneau argues that the Nair form is the superior one. In support of his contention he points out the fact that in it women are freer and are held in higher esteem than is the case with many of the so-called superior types of marriages. But this is an unsatisfactory basis for classifying forms of the family, because unfortunately the evolution of the family relation does not always ensure the elevation of the position of woman. In the lowest stages of culture as well as in the highest, women are much more the equals of men than in some of the intermediate stages. Consequently Nair marriage cannot be given a high rank simply because of the comparative freedom enjoyed in it by women. There are reasons for suspecting that it may be a degenerate form.

The causes of the Nair form of polyandry are not the same as those of the Thibetan form. The Nairs belong to a high caste, and are not notably lacking in resources. Furthermore

they are in the agricultural stage of economy; while most, though not all, of the polyandrous peoples of the other type are in the pastoral stage. Some of the marriage customs of the Nairs would seem to indicate that their form of marital relations represented a minor variation rather than an important form of family life. At any rate the causes are obscure and a discussion of them would be purely speculative.

In this analysis of the causes underlying the forms of the family, the broad influences only are presented. In case of particular peoples it will be found that specific marriage forms and customs are determined by a complex of forces, and to understand them in detail would require intensive study of their histories.

On polygyny. The causes of polygyny have been studied in greater detail than the causes of the other forms of the marital relation; and here again Westermarck's conclusions have been generally copied by later writers. Among the causes to which the practice of polygyny is attributed, one of the most prominent is an excess of females, which results in most cases from warfare, both because men are killed and women are captured, although in a few cases the excess comes from the higher death rate of men in dangerous occupations, and a temporary excess, sufficient to affect family relations, arises from the absence of men on long journeys. Polygyny is said to result also from the imposition of customs, or tabus, requiring the separation of husband and wife at stated intervals and sometimes for long periods of time. Other causes given are the attraction of female youth and beauty for man, his taste for variety, his desire for offspring, and finally his struggle for power, wealth, and authority.

These conditions, mentioned by Westermarck, may be classed among the secondary or contributing causes of polygyny, but as primary causes they can be supported neither by facts nor by logic. Even the facts to be gleaned from Westermarck's comprehensive review of the forms of marriage corroborate this view. In his discussion of the excess of females he refers to 28 places or peoples where females noticeably preponderate; but, notwithstanding the widespread existence of polygyny as a marriage system, he reports that it is practised in only 10 out of these

28 districts. Next, in regard to the influence of customs tending to separate husband and wife, Westermarck mentions 25 instances of peoples having such customs and of these 12 are polygynous and 13 are not. As for preference for female youth and beauty, that is so universal that societies cannot be divided on that point; yet Westermarck mentions 22 cases of primitive peoples in which women show a particularly marked tendency to lose their beauty at an early age; and of these 9 are polygynous and 13 are not. The desire for variety and the desire for offspring are mentioned only in connection with polygynous peoples; but it is interesting to note that desire for offspring is cited as the immediate cause of a plurality of wives in 12 cases only.

From these actual instances it does not appear that Westermarck's causes are either fundamental or even very forcible in producing the polygynous form of marriage, or else the alleged cause and effect would vary more consistently. Not only does polygyny appear in less than half of the societies containing the conditions supposed to produce it, but the specific causes account for only about 43 out of 184 cases of polygyny cited by Westermarck.

If these causes are tested by deductive reasoning they receive no better support. In fact an analysis of them seems to show that a misconception exists with regard to the real nature of the problem. The problem is to ascertain the cause of the polygynous system, but the causes given by Westermarck are merely individual reasons for taking a plurality of wives under a social system permitting polygyny. The system itself is assumed, not explained. Most of the factors enumerated are present in modern societies; in fact the individual desires mentioned are common characteristics of men in all stages of culture, yet that fact has not prevented the realization of the monogamic system. If man's preference for youth and beauty were a fundamental cause of polygyny, then polygyny would pass only when men showed a partiality for old age and ugliness. The desire for offspring varies considerably, to be sure, but the variations are chiefly individual. They show no general rhythm corresponding to changes in the type of family. And as for the struggle for

wealth, power, and authority, — when, it may be asked, have men ceased to desire them? The monogamic system could not have resulted from a change in man's attitude towards wealth and position. Under the system of polygyny men merely found expression for their desires in a plurality of wives; and after that system passed away these desires were directed into other channels.

The fundamental cause of the transition from the proprietary stage of the family has already been traced to the development of self-consciousness in the male and the resulting subordination of the female to the level of property. The immediate cause of polygyny, as distinct from polyandry, is again to be found in the accumulation and ownership of wealth. In more favorable environments where wealth increases rapidly, it is possible for the individual to acquire a considerable surplus. Then the male, who owns the wealth, may have one wife or many, according to his resources and the number of women available. In some cases the situation is altered by the fact that part of the work is performed by women, and they are therefore a source rather than a sign of wealth. In such cases women favor the polygynous system because it lightens the burden of their work. The man with only one wife is held in contempt.

As a social cause of polygyny Westermarck suggests the differentiation of society into classes; and class distinctions are usually closely connected with the accumulation of wealth. The two are not always identical, however, and frequently the accumulation of wealth seems to be the direct determining factor. Pastoral peoples practise polygyny when no marked class distinctions have arisen.

In addition to the fact of the increase of wealth, its disposal through inheritance has tended to narrow sex relations, individual inheritance of property requiring a form of marriage which ensures legitimacy. And finally, the individual causes of polygyny enumerated by Westermarck may be added here in order that the system may be fully explained. Such individual characteristics must be assumed if the polygynous system is to develop into an enduring system. Furthermore, these characteristics are particularly important in causing polygyny to persist

in advanced societies which are otherwise prepared for the complete monogamic system.

On monogamy. Voluntary monogamy, the third type of marriage, is primarily dependent, as has already been pointed out, on further development of personality, particularly in the female. The chief effect of economic conditions has been in helping indirectly to improve the position of women and to increase the feeling of equality between the sexes. As advanced societies free themselves more and more from the direct influence of the environment, so the advanced forms of the family are freer from the direct influence of economic conditions than are the primitive forms.

A determining influence in the replacement of polygyny by an early and imperfect form of monogamy was the desire to concentrate property in the hands of fewer heirs. This hastened recognition of one wife only as the legal wife and of her children as the only legitimate heirs. Chief among the indirect influences are those which have helped to raise the position of woman. The decline of wars of extermination, and of the plunder and rapine following such warfare, have removed the degrading conception of woman as mere booty, the property of the strong. The increased economic and social activities of woman, made possible by the modern industrial system with its complicated forms of division of labor, have been instrumental in winning for her an equality of rights and privileges which have greatly increased her independence and influence. And in the modern complex organization of society, the intimate association of the sexes on terms of increasing equality has helped to develop woman's personality and to hasten the recognition of virtual equality of the sexes. Such an improvement in the position of women is an essential condition to the attainment of the highest form of monogamy.

Two Forms of Monogamy. Monogamy shows such variations that Starcke has distinguished two forms, the one to be found in Latin countries and the other in Anglo-Saxon countries. The first is the juridical or institutional form in which the social importance of the organization itself is emphasized; and the other is the individual form in which personal rights and privi-

leges are preëminent. While these two forms originate merely from a difference in emphasis placed upon two essential phases of the marriage relationship, they develop divergent tendencies of considerable significance. When the institutional side of the family is over-emphasized, the personal preferences of the contracting parties receive little consideration. Marriages are usually arranged by parents with reference to the social desirability of the unions. Marriage is looked upon as permanent, so divorce is infrequent. And extra-marital relations are more likely to be condoned in order that the organization may be kept intact. When the individual side of the marriage relation is over-emphasized, personal preferences and personal happiness receive first consideration. The choice of partners is left to the parties concerned. There are few restrictions on marriage; and it is often entered into with little forethought or seriousness of purpose. Divorce is tolerated if the parties prove to be ill-mated, the happiness of the individuals concerned rather than the social welfare being the primary consideration.

Both these forms of monogamy contain desirable and undesirable elements, so that neither can be wholly approved nor wholly condemned. The ideal form would seem to be some sort of a compromise between them, though the monogamic family will always show minor variations according to the character of a people and its social institutions. The present trend towards extreme individualism has helped to strengthen the individualistic attitude towards the family, sometimes causing extreme manifestations of that form to appear in Anglo-Saxon countries, and even affecting the stability of the institutional form in Latin countries.

Relative Advantages of the Different Forms of the Family.

Although certain advantages in all the marriage relations have been touched upon in connection with the discussion of causes, a review and comparison of their relative merits will bring out more clearly the superiority of the monogamic form and will indicate also the characteristics valuable to retain in any future modifications of the family relationship.

In passing judgment on the indefinite forms of the family relationship, it should be remembered that this type represents

social organizations which are but little developed or differentiated. And while these indefinite relations have few positive merits to commend them, they are not inconsistent with other phases of primitive group life. As a general rule sex relations are so lax that paternity is uncertain, parental affection is but little developed, and no strong or lasting attachment is likely to be formed between the sexes.

The proprietary family in its various forms represents higher individual development and more advanced social organization and indicates progress in the direction of restricting the sex relations. In polyandry, parentage is at least limited to a recognized family group, though the Nair is the least definite of all forms. In Thibetan polyandry and in group marriage the family group is restricted to the same degree as ownership and inheritance of property. Individualism in sex rights and in property ownership seem to accompany each other. Under the system of polyandry, as well as under the indefinite system, the sexes are on terms of comparative equality.

Polygyny represents a higher though a less equal development of individuality than the previous systems, the male being in an economic position stimulating to development, while the female fails to share in the advancement. In the patriarchal polygynous family, women and children as well as property are owned and controlled by the male head. Its social advantages are that parentage is certain; and children, especially sons, are highly prized; and there is also a possibility that a strong attachment may be formed between the husband and one of the wives, who may come to hold a superior position as favorite. It is also true that the polygynous family did offer a refuge and protection for women at a period when, having no participation in economic life, an independent existence for them was impossible. Some of the criticisms levelled at polygamy would be more relevant if directed against the general social conditions under which the system flourished. The polygynous system was an outgrowth of the economic and social structure and was not altogether unadapted to it. While it does not favor the development of woman, it can hardly be held responsible for her inferior position. That must be attributed to much broader and more

fundamental conditions, of which the polygynous family itself was an expression. And finally, among other favorable effects, it may be said that in societies where the male death rate was high, either from warfare or from hazardous occupations, the polygynous system permitted a higher rate of population increase than would otherwise have been possible, and this was often a real advantage.

The defects of the polygynous system are most apparent when it is viewed with reference to the welfare of women and children. Under a family system permitting a plurality of wives, if one wife is made the favorite the others are correspondingly neglected. And, on the other hand, if no strong attachment exists between the husband and any one of the wives, then marriage is imperfect for both sexes. From the point of view of the best interests of children the polygynous family fails to provide an ideal environment. Children are likely to suffer from lack of paternal care, and a bountiful supply of mothers does not remedy the defect. In those cases where an atmosphere of jealousy and rivalry exists among the wives home influences are further demoralized. From the standpoint of sexual selection polygyny is inferior to monogamy for, inasmuch as practically all the women marry, they are not subjected to the selective process at all. On the other hand the action of selection is cumulative in the case of the male for his qualities are transmitted to offspring by several wives. This might be an advantage provided men with superior personal qualities always had the largest number of wives; but even this seeming advantage might be neutralized if the superior qualities of the male were transmitted through inferior wives.

The monogamic system, in its possibilities of adaptation to social progress, is far ahead of any other; and in its average achievements it is superior, especially in highly developed social organizations. Voluntary monogamy, as has been shown, coincided with the improvement in the position of woman, and it favors also continued improvement in her position. In it both sexes are subject equally to the action of sexual selection, and this should promote equality between those who marry, and make possible more rapid improvement in racial qualities.

Moreover, if a man is to have but one wife, and the union is presumably to be for life, marital companionship will be more intimate and of much greater consequence than it would be if he had several wives. He will therefore be more careful in his choice, selecting the mental as well as the physical traits most likely to give him enduring gratification. Under monogamy then woman will feel a greater incentive to mental development in order that she may raise her standard to equality with that of man. In fact the monogamic system tends to favor the selection of mental traits for companionship, while the polygynous system favors the selection of physical traits for sensual gratification.

In estimating the merits of a particular marriage system, the factor of chief moment is its effect upon the children; and in this regard the monogamic system is superior to every other. Monogamic marriage, wherever the numbers of the sexes are comparatively equal, gives the highest birth rate, and the superior relationship of the parents ensures the best care of and provision for the offspring.

In weighing the comparative values of the different forms of marriage, not the failures they have shown, but the possibilities they offer of adaptation to social needs should be made the basis of judgment.

Present Tendencies. This review of the early forms of the family has for its object, like all kinds of historical study, the elucidation of present day problems. Modern changes in the family, like past transformations, may be traced primarily to growth of personality and to economic conditions. More specifically they have resulted from the increasing economic independence of woman and her improved social status.

Definite manifestations of the new tendencies are numerous, but they may be reduced to two kinds of demands or aspirations. The first is the demand for greater freedom from the restraints of marriage; and the second, in apparent contrast to the first, is an increasing demand for the privileges of married life. The demand for greater freedom seems sometimes to be so strong as to threaten the permanency of the family union, yet it is not without its favorable aspects, for it shows that

women, being no longer limited to marriage for a career, refuse to submit to unions which may have become repressive or repugnant.

The danger of this growing independence is that divorce may be carried beyond reasonable limits and employed as a means of license. Divorce may be desirable when employed to liberate the oppressed, but dangerous when used to satisfy the desire for change and variety. The elimination of the element of compulsion in the marriage relation is a belated step in the course of development from the proprietary to the voluntary form of monogamy; but too great a relaxation in the marriage tie might cause retrogression from monogamy to more indefinite forms of the sex relations.

This modern desire for freedom manifests itself also on the part of woman, in a demand for greater equality within the family. It is apparent in her increasing desire for self-expression, exhibited in such ways as a demand for a career without interference from the marriage relation, or for complete freedom from any form of dependence financial or personal, or for emancipation from excessive household cares and responsibilities, or for the right to voluntary parentage through birth control.

The second set of tendencies, revealed in the growing demand for the privileges of married life, is also expressed in several specific ways: first, in the desire to make normal marriage more generally possible: and, secondly, in the attitude of a small circle, that failure to marry should not necessarily mean deprivation of the rights of parenthood; and, thirdly, in the assertions that women should not be required to undergo continual sex repression, or at least that sex standards should be identical for both sexes. This declaration of rights is not, as might appear at first glance, inconsistent with the demand for greater freedom, both representing the struggle for more complete self-expression. Where self-expression seems to be hampered by the marriage relation, a greater measure of freedom within that relation is demanded; but when it is felt that self-realization is to be found only in family life and parentage, these are in turn demanded.

Modifications in the form of the family relations along the

lines indicated by these varied demands would no doubt often be wholesome; but, if carried to extremes, they might easily become menaces to the integrity of the institution. No detailed discussion of these various tendencies can be undertaken; but some assistance to the elucidation of present-day marriage problems may be gained by considering what improvements would be desirable in the present relation. Any new departures in the form of the family must be judged by their ultimate effects upon the institution itself, and by the probable efficacy of the modified institution to perform its social functions.

The permanent monogamic family seems so superior to other forms in its effects both upon the character of the union and upon the welfare of offspring, that this form should be retained as the basic principle of marriage; but the relationship itself might be improved by removing all traces of compulsion from it, and making it, so far as possible, the expression of voluntary action resulting from mutual attraction of the sexes. All irrelevant considerations, whether arising from the desire for financial or social advantage or from pressure of other persons or conditions, would seem to be extraneous to the purpose of the marriage relation and inconsistent with the fulfilment of its functions. Furthermore, the freeing of women from many of the restraints connected with household cares would be advantageous in that it would give them leisure and opportunity for the better performance of unavoidable duties.

On the other hand, desire for freedom may be carried to excess. In the general movement for release from unnecessary restrictions, the view is easily gained that every condition which represses natural instincts or seems to interfere with full and free individual development is objectionable and should be removed; but such an idea is narrow and individualistic. Life is full of necessary restrictions and repressions. To promote the welfare of society the individual must be sacrificed in minor ways; but these restrictions are not ultimate losses, since the individual attains his highest development through the perfection of the social organization. The desire for parentage is a desire for self-expression; and it fulfils the needs of society, provided the conditions are favorable for the welfare of the child. The child

is not for the parents, but the parents for the child. And the parental instinct exists not for its own sake but to ensure the care of the offspring. Similarly the sex instinct exists not for the individual, but for the pair; and its restraint, though seemingly an individual sacrifice, is actually a condition for its normal and perfect expression in ideal mating. Individual repression is normal and necessary whenever it contributes either to higher individual development or to the perfection of the group. Repressions which neither expand the individual nor promote group welfare are needless, probably pernicious, and should be removed. This principle may be taken as a guide not merely in the solution of problems connected with matrimonial restrictions, but also of those relating to individual freedom in any sphere of life.

Conclusion. In conclusion it may be said that the important factors affecting the family relations in modern societies, as well as in ancient, are degree of individual development and economic conditions. One significant feature in the present situation is that not all individuals by any means are monogamically inclined, though monogamic marriage is the only form recognized by law. The result is that other forms of sexual relations secretly flourish. A second factor in the modern situation is that not all persons are economically independent; and among those who are, marked differences exist in amount of wealth and character of occupation. The result of this condition is that much of the monogamy existing is forced rather than voluntary. Progress then requires, first, the extension of the monogamic ideal through education and the influence of public sentiment, rather than through legal repression; and, secondly, it requires a change in the character of the marriage relation through an extension of economic independence, though not of economic affluence, for the extremes of wealth and of poverty have both resulted in excessive license or excessive repression. The situation is complicated by the fact that individual development does not vary with degree of wealth.

Notable changes taking place in modern conditions arise out of the increasing independence of women, which has two kinds of results. It has caused increased dissolution of the marriage

tie in cases of the proprietary form of monogamy, — a result not entirely unwholesome for those in the monogamic stage of development, — and it has caused a demand for greater sexual independence along with other forms of freedom. This reform again, when advocated by monogamic individuals, is unobjectionable; but when sought by the polygamously inclined is cause for concern, though the retrogression resulting would be more apparent than real, for law may aid but does not perfect evolution of the family. Polygamous instincts forcibly restrained do not give monogamy in spirit; but polygamous instincts rampant do not give monogamy even in form.

Future changes in the relations of the sexes must be consistent with the ideal of the permanent monogamic family. But the standards of efficiency of the family may be improved by greater individual freedom and a wider range of activities on the part of the women, in so far as they tend to contribute to individual development without interfering with the fundamental purposes of the family. Parentage outside the monogamic union would be detrimental to the offspring; and extra-marital relations would interfere with the highest type of mating. All measures tending to promote monogamic unions within the recognized limits of sexual selection are desirable and should be encouraged; but this object is thwarted, not assisted, by laxity on the part of either sex. The greater the limitation of illicit sexual relations, the more freely will monogamic unions be formed.

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CHAPTER XIX

THE LAWS OF POPULATION: THE BIRTH RATE

The population of a given country may increase in two ways, either by natural means, that is, by the excess of births over deaths, or by immigration. In the latter case, although the immediate result is to effect a redistribution of populations, such a redistribution may ultimately influence the birth and death rates of both countries involved in such a way as to cause an increase or decrease of their aggregate populations over long periods of time. A formulation of the laws of the natural increase of populations, involves a discussion of both the birth and death rates; and the birth rate, which is the more important, will be considered first.

Birth Rates. Before proceeding to a discussion of the principles of population, the more significant facts concerning present tendencies of the birth rate should be considered. Table IV gives the crude birth rates of several European countries since the decade in which the rate reached the maximum.

A number of suggestive facts may be gleaned from this table. The birth rate varies greatly from country to country, but it averages lowest in northern European countries and highest in southern countries. The figures show also that the birth rate has declined in all countries, but that the decline started in northern Europe where the rate was already lowest. Among the northern countries the decline has been most rapid and the rate is now the lowest in the more advanced industrial countries. Germany presents a slight exception to the rule, perhaps more of an exception than the figures in the table would indicate. The birth rate in Germany was particularly high in the '60s and '70s, and from 1880 to 1900 no appreciable change took place. It was only after 1900 that a decline comparable to that in other industrial countries appeared. To bring out only the

TABLE IV
BIRTH RATES OF EUROPEAN COUNTRIES.¹

	Decade of highest rate	Highest rate	1891-1900	1912	
France	1801-1810	32.2	22.1	19.0	(1913)
Denmark	1851-1860	32.5	30.2	25.6	(1914)
Sweden	" "	32.8	27.1	24.8	
Norway	" "	33.0	30.4	25.2	(1914)
Finland	" "	35.9	32.1	27.1	(1913)
Spain	1861-1870	37.8	34.8	32.6	
Germany	1871-1880	39.1	36.1	27.5	(1913)
Scotland	" "	35.0	30.3	25.9	
England and Wales	" "	35.5	30.0	23.3	
Ireland	" "	26.4	23.0	23.0	
Belgium	" "	32.7	28.9	22.6	
Netherlands	" "	36.4	32.5	28.2	(1914)
Austria	" "	39.0	37.1	31.3	
Italy	1881-1890	37.8	35.3	31.7	(1913)
Hungary	" "	44.0	40.4	36.3	
Servia	" "	45.4	41.9	38.0	

more obvious differences in birth rates of European countries would require at least a two-fold subdivision; first, between northern and southern countries, and, second, between agricultural and industrial countries. The division between northern and southern countries is not primarily a matter of climatic difference, because France, situated in middle Europe, has the lowest rate, and Russia, one of the coldest countries, has the highest rate, — reported as 45, though probably the figures are not very reliable. The significant difference between north-western Europe and southeastern Europe, so far as the birth rate is concerned, lies in the superior average of intelligence, and in the higher standards of living of the north.

Although crude birth rates are sufficiently accurate for many purposes of comparison, they do not indicate whether a decline is due to less fertile marriages or to other causes, for they take no account of the age distribution of the population or of the numbers of the married and single. To give a more accurate idea of the nature of the decline in the birth rate, the refined rates for various countries are given in Table V, with the percentage of decline between 1880 and 1900.

¹ Part of this table is taken from the report of the National Birth Rate Commission, p. 27.

TABLE V¹

LEGITIMATE BIRTHS PER 1,000 WIVES, 15-45 YEARS OF AGE.				
				Percentage Decrease
	1880-2	1890-2	1900-2	1880-1900
France	196	173	157	19.9
Spain	258	264	259	.4
Italy	276	283	269	2.5
Austria	281	292	284	1.0 increase
Ireland	283	288	289	2.1 increase
England	286	264	235	17.8
Denmark	287	278	259	9.7
Sweden	293	280	269	8.0
Germany	310	301	284	8.4
Scotland	311	296	272	12.5
Belgium	313	285	251	19.8
Norway	314	307	303	3.5
Holland	347	339	315	9.2

The chief facts in this table agree with the preceding. The countries with the lowest crude birth rate, France, England, and Belgium, have also the lowest refined rates, and the percentage of decline has been most marked with them; that is, in these countries the lower birth rate means smaller-sized families. The more moderate declines in the crude birth rates for Denmark, Sweden, and Germany appear also from Table V to mean moderate declines in the average size of families. On the other hand, Italy and Austria, which showed moderate declines in the crude birth rate, seem to have had an actual increase in the refined rates between 1880 and 1890, though this was followed by a slight decrease in 1900. This variation may have been caused by the character of the emigration from these countries. Norway and Holland have a much higher refined birth rate than might be expected from the figures for the crude rates, and the decline in the refined rates in Norway was small up to 1900. On the whole the table for the refined birth rates indicates that the decline in most cases means smaller families rather than fewer marriages. In fact the marriage rate has not generally decreased in European countries with the exception of England and Scotland. In a few cases the lower crude birth rates may be caused by changes in the age distributions of the

¹ Encyclopedia Britannica, Art. Population, by Sir J. A. Baines.

populations brought about through migrations, rather than to a decrease in the number of children among the married.

Even more striking than the differences in fecundity between countries are the variations among groups within a country, as shown by a number of population studies. The decline in the birth rate is usually more pronounced in cities than in rural districts and the amount of the decline seems to vary quite regularly with the density of population.

TABLE VI¹

BIRTH RATES, URBAN AND RURAL.

Germany

	1879-82	1894-97
Berlin	23.8	16.9
Great towns other than Berlin	26.7	23.5
Towns of 20,000 to 100,000	26.8	25.7
Towns of less than 20,000	27.8	25.9
Country Districts	28.8	29.0

Denmark

	Copenhagen	Other Towns	Country
1860-69	21.1	23.7	23.2
1870-79	21.9	24.4	24.0
1880-89	22.9	25.7	24.3
1890-1900	17.4	22.5	24.4

France

	1894-96	1904-06
Districts with over 70% agriculturists	31.2	30.2
55 to 70% agriculturists	28.2	26.6
45 " 55 " "	26.9	24.9
30 " 45 " "	26.5	23.8
10 " 30 " "	27.7	23.7
Less than 10% "	24.2	21.5

The above tables taken from the Report of the National Birth Rate Commission give practically identical results for Germany, Denmark, and France. On the other hand, Newsholme reports that in England the decline in the birth rate between 1881 and 1903 was less for London than for some of the rural counties.

¹ Report of the National Birth Rate Commission, p. 33.

TABLE VII

ENGLISH BIRTH RATES: RURAL AND URBAN.

	1881	1901	% Reduction
Selected Urban Counties	33.89	28.29	16
Selected Rural Counties	36.30	29.39	19
London and Selected Counties	1881	1903	
England and Wales	32.73	27.29	17
London	30.92	25.91	16
Bedfordshire	32.61	25.11	23
Berkshire	33.97	26.80	21
Cornwall	35.46	25.11	29
Rutland	36.39	26.04	28

Inasmuch as the birth rate has been declining for a much longer period in England than in Germany, it is possible that the true interpretation of these figures is that the decline starts in the large cities and spreads gradually to the rural districts. The final relative rates of reproduction between urban and rural districts will probably depend upon the composition of the population in each; and the results may vary in different countries. In France, where the birth rate has been declining for the longest period of time, the rate is still highest among the agricultural population.

TABLE VIII

Births per 1,000 Women, aged 15-50 yrs.

Classification	Paris	Berlin	Vienna	London
Very Poor Quarters	108	157	200	147
Poor Quarters	95	129	164	140
Comfortable Quarters	72	114	155	107
Very Comfortable Quarters	65	96	153	107
Rich Quarters	53	63	107	87
Very Rich Quarters	34	47	71	63

TABLE IX

Births per 1,000 Married Women, aged 15 to 50 yrs.

Classification	Paris	Berlin
Very Poor Quarters	143	214
Poor Quarters	128	198
Comfortable Quarters	109	192
Very Comfortable Quarters	96	172
Rich Quarters	94	145
Very Rich Quarters	65	121

That the birth rate varies quite uniformly with wealth is indicated by several population studies.

Bertillon presents the refined rates for four cities all of which show similar declines, though the rates for all classes are much higher in Berlin and Vienna than in Paris and London.

In a study of the vital statistics of London by districts David Heron¹ ascertained the differences in birth rates between rich and poor sections of the city and compared them with similar figures for a period fifty years earlier. In 1851 the birth rate per 100 married women over 20 years of age ranged from 15.26 in St. Martin's in the Field to 22.99 in St. Luke's; and in 1901, they ranged from 11.04 in Westminster to 22.73 in Stepney. The mean rate for 1851 was 18.39 and for 1901, 15.93. According to these figures fertility has declined in all districts in 50 years, but much more in the rich districts; and the variation in rates is now wider than formerly. Heron compared also the differential mortality rates, but found that they did not offset the differences in the birth rates. The differences in the ages of wives at marriage was a factor of considerable importance. In 1851 this factor was found to be sufficient to account for the entire difference in birth rates between districts; but in 1901 it accounted for about half the difference. The author concludes, therefore, that in the middle of the last century families were not generally restricted; but at the present time the low birth rate among the wealthier classes is the result of voluntary restriction as well as later age of marriage. The former cause is thought to be of chief importance by the Registrar General of England, who attributes about 17% of the decline in the birth rate to abstinence from or postponement of marriage and about 70% to voluntary restriction. Other studies made by Pearson, Yule, Stevenson, and others lead to the same general conclusions and need not be reviewed here. That the birth rate declines with economic status may be accepted as a general principle; but numerous important exceptions to the principle appear from the more detailed studies of the birth rate according to occupations.

A comprehensive study of the birth rates by occupations for

¹ Drapers Company Research Memoirs. Studies in National Deterioration, No. 1.

England and Wales, from the middle of the 19th century to 1911 was made by Dr. Stevenson,¹ the general results of which are presented in Table X.

TABLE X

PART I. FERTILITY ACCORDING TO SOCIAL CLASS.

	I	II	III	IV	V	VI	VII	VIII
Crude Rates	190	241	279	287	337	238	358	327
Standardized Rates	213	248	278	285	317	247	348	320

PART II. CHILDREN SURVIVING PER 100 FAMILIES.

Crude Rates	168	205	232	237	268	191	282	284
Standardized Rates	187	211	231	236	253	197	274	278

Part I of this table gives the total number of births per hundred families, and Part II gives the number of the surviving children, thus making allowance for the differential death rate. The difference between the crude and the standardized rates is that the latter makes allowance for the age of the wife at marriage. The social classes of the population are ranged in columns from I to V, column I including the middle and upper classes, and column V the unskilled laborers. In the last three columns are given sub-groups of unskilled. Column VI is textile workers, VII miners, and VIII agricultural laborers.

These figures confirm the results of the previous studies in showing that birth rates decline with improvement in social status. The result is the same in both the crude and the standardized rates, though in this study it appears from the standardized rates that the age of the wife at marriage accounts for almost one third of the differences in birth rates between Groups I and V. This table demonstrates, therefore, that the upper classes not only marry at a later age but are least fertile after marriage. Among the unskilled laborers considerable variation appears. Miners have the highest rate and textile workers much the lowest rate; in fact they rank next to Group I.

If the number of surviving children, given in Part II, is taken into consideration the relative position of the upper classes is somewhat improved, for infant mortality declines regularly with

¹ Journal of the Royal Statistical Society, 1920.

improved economic status. The differential death rate, though not great enough to eliminate the differences in fertility between classes, reduces it by about one third, the relative position of the chief groups remaining the same. Among the unskilled laborers, however, infant mortality is particularly high in the group of miners, where the birth rate is at the maximum, their net fertility being reduced slightly below that of agricultural laborers.

The low fertility of textile workers is ascribed by the Whethams to the fact that the women work in the mills instead of being free for home cares, as they are in a mining district; but Pearson points out that the birth rate among the textile workers was formerly much higher; and periods of decline have coincided with the factory acts, which, in forbidding child employment, made the children of textile workers a financial burden instead of a source of income.

Another interesting study of fertility according to occupation and social position is that of M. Lucien March for France.¹ His figures, given in Table XI, show the number of children for every 100 married men of the age group in which the number of children reaches its maximum.

TABLE XI

AVERAGE NUMBER OF CHILDREN FOR EVERY 100 MARRIED MEN			
Fishermen and Sailors	486	(3000	60-64 years old)
Workmen	404	(140000	" " "
Employers	360	{ 280000	above 65 years }
		{ 360000	" " "
Workhouse Inmates, Prisoners and Vagabonds	353	(5000	70 years old)
Men of Private Means or without Occupation	332	(145000	" " ")
Salaried Employees	310	(5000	over 70 years)

In this table the interesting departure from the general principle that fecundity varies inversely with wealth is that of salaried employees. Their fertility is lowest of any group in the table, but their incomes are less than those of employers or of men of private means. The chief influences tending to lower

¹ International Eugenics Congress, I, p. 208 (1921).

the birth rate according to M. March are, first, professions of an intellectual nature which lead to late marriages; and, second, anxiety for the future of children. It was found that in the same general line of occupation large businesses favored children more than small ones, the conclusion being that men engaged in small scale occupations saw less opportunity for their children than did those connected with large industries.

Further interesting variations in the birth rate for some of the professional groups and unskilled labor groups in England appear in the following table.¹

TABLE XII

BIRTH RATE ACCORDING TO OCCUPATION, ENGLAND AND WALES, 1911

Occupation	Birth Rate per 1,000	
	Married Men under 55	Years of Age
Teaching Profession	95	
Lawyers	100	
Doctors	103	
Agricultural Laborers	161	
Dock Laborers	231	
Coal Miners	232	

Statistics showing fertility according to economic status in the United States are not available; but a suggestion of the relation of reproduction to social position is found in the comparative birth rates of the native and the foreign born. Mr. R. R. Kuczynski,² after a careful study of the statistics for Massachusetts gives the refined birth rates for the native and foreign born as follows:

TABLE XIII

BIRTH RATE PER 1,000 WOMEN, AGED 14-49.

	1883-87	1888-92	1893-97
Native Mothers	63.7	62.8	62.6
Foreign Born Mothers	124.5	133.6	139.4

This table illustrates differences in social status and probably also includes racial and perhaps other conditions affecting

¹ Quoted in Bower, Kerr, and Agar, *Sex and Heredity*, p. 113.

² *Quarterly Journal of Economics*, 16: 144.

fertility. It shows a marked difference in birth rates, but the author points out that a part of this difference is due to the small proportion of native women who are married. In the next table he eliminates the unmarried and shows that the real difference in fertility is slightly less than was apparent from the first set of figures.

TABLE XIV

REFINED BIRTH RATES OF MARRIED WOMEN.

	1883-87	1888-92	1893-97
Native Mothers	105.35	106.41	108.39
Foreign Mothers	181.51	195.41	199.54
State	134.00	141.75	147.19

This table brings out the fact that the slight decline in the birth rate among the native born shown in the preceding table may be traced to a decline in the marriage rate rather than to a decline in the fertility of married people.

Striking as these differences in birth rates are between the native born and foreign born in Massachusetts, Professor A. A. Young found even wider differences in his study of the birth rate in New Hampshire. He found that the fecundity of the foreign born married women between the ages of 15 and 45 years was two and one half times that of the native born married women between the same ages.

Newsholme and Stevenson¹ have reported the following corrected birth rates in the United States for native and foreign born.

TABLE XV

CORRECTED BIRTH RATES.

	Boston (1900)	Providence (1901)	Rhode Island (1901)
Native Born	18.20	16.00	17.01
Foreign Born ...	31.06	31.08	30.96

In these figures births of mixed parentage are equally divided between the native and the foreign born, the effect being to increase slightly the former rates and to decrease the latter.

To recapitulate the facts concerning the birth rate, it appears

¹ Journal of the Royal Statistical Society, 69: 34.

that the rate has fallen most, and is now the lowest, in the advanced industrial countries, England, France, and Belgium; and since 1900 it has fallen rapidly in Germany. The highest rates are in the poorest and least progressive countries. In those countries which are still primarily agricultural the fall in the birth rate has been less and the rate is generally lower in northern than in southern and eastern Europe.

In general the refined birth rates showed that the decline meant an actual diminution in the size of the families among the married population rather than a lowering of the marriage rate.

Within a country the fall in the birth rate begins in the large centers and gradually spreads to outlying districts, though in most cases the rate continues to be lower in cities than in rural districts.

The decline is the most pronounced also among the wealthier classes. On the average the rate decreases quite uniformly with improvement in economic status, but some variations from this rule appear among different groups of unskilled laborers and also within the various professions. Some of the occupations belonging to the middle class show rates of multiplication lower than the rates prevailing in the wealthier classes above them, indicating that other factors than mere wealth enter into the problem.

Theories of Population. With these facts before us we may now consider some of the most significant theories of population, inasmuch as these theories generally pertain to the birth rate rather than to the death rate.

Spencer's Theory. The law having the broadest application is that formulated by Herbert Spencer, for his is a general biological law applying to all grades of animal life. The essence of his principle is contained in the formula that generation varies inversely with individuation; that is, that the reproductive capacity itself diminishes as the evolution of the individual proceeds. Spencer undertakes to prove the point by two methods. First, he shows that every species of life which succeeds in adapting itself to the environment must strike a balance between the preservative and the destructive forces. Now the means of

preservation of a species are of two kinds; individual adaptation, and reproduction. Both are essential but they may exist in very different ratios. Together they must counterbalance the forces destructive to a species, if that species is to maintain the equilibrium necessary for survival, and therefore as one increases the other must decrease. If the numbers of a species are growing it signifies of course that the forces destructive to it have fallen below the preservative forces. As every step in evolution implies some advantage, every gain in individuation leaves a species in a relatively better position than before; therefore the decline in fertility of a species need not always be so great as its gain in individuation, and such a species multiplies. As a secondary proof of this proposition Spencer shows that each individual, as well as each species, has a given amount of energy which he can utilize to resist destroying forces. If much of this energy is used in preserving the life of the individual, he can spare little for procreating new life.

Spencer's theory explains satisfactorily different rates of reproduction among the different species, but it is doubtful if it accounts for variations of birth rates among different families or groups of mankind. The error in the proof lies in the assumption that a given amount of energy is divided between individual adaptation and reproduction; or, in other words, that the total energy of a species is ever utilized to counterbalance the destructive forces. With most species, and certainly with mankind, there is a considerable leeway. The total energy of a species should be divided into three parts; that which goes to individual preservation, that which goes to reproduction, and an indefinite amount which is wasted, or at least is not used in counteracting the destructive forces. Just as a large part of the heat generated in a steam engine is lost, so, too, much of the energy of the human race is not utilized advantageously. And evolution of human societies consists to a large extent in the utilization of energy which inferior people waste. It is possible, therefore, that individual development in the human species may go on with no diminution and perhaps even a gain in fertility.

Positive evidence that the Spencerian law applies to human societies is small. Spencer himself argued that fertility in-

creased with abundant nutrition, that is, with the amount of available energy. Miss J. A. Brownell¹ tried to obtain evidence of the working of Spencer's law from such correlations as those of the birth rate to deaths from nervous diseases, to the density of population, to the values of agricultural and manufacturing products, and to mortgage indebtedness. None of these correlations, however, except perhaps the first, could be accepted as direct evidence of the working of Spencer's law. It is possible that the greater expenditure of nervous energy necessitated by the strenuous competition in industrial communities may have diminished reproductive capacity, but it is certain that it has not done so sufficiently to account for the variations in birth rates among different social groups, or classes within a social group.

The Malthusian Theory. More than half a century before Spencer presented his theory of the natural increase of species, Thomas Malthus wrote his "Essay on the Principle of Population," which has greatly influenced later writers. In 1803, five years after the first edition appeared, the essay was thoroughly revised and enlarged and the conclusions were somewhat altered. Nevertheless the conclusions reached in the first essay were believed by Malthus himself and by many of his followers to be really the probable ones, the modified conclusions of the later edition being merely accepted as possibilities. Malthus's law is somewhat narrower in its application than Spencer's and logically follows it.

Spencer showed that there are certain preservative and destructive forces acting on every species. The destructive forces are of two kinds: positive, in the shape of enemies which prey upon the species; and negative, in the form of limitation of the food supply. Ordinarily a given species preys upon inferior forms of life and is preyed upon by superior forms, although some danger exists also from inferior species because of their greater numbers. Man, however, being the highest form of animal life is threatened chiefly with the limitation of the food supply and attacks of inferior forms of life. Malthus recognized the limitation of the environment so far as it concerned the food

¹ Annals of the American Academy of Political and Social Science, Vol. 5.

supply and built his law of population upon that. His chief propositions may be stated as follows. First, population is limited by the food supply. Second, population tends to outrun the means of subsistence, for under favorable circumstances population increases in a geometrical ratio, doubling itself every twenty-five years, while the food supply at best can increase only in an arithmetical ratio. Third, population is kept within the limits of the food supply either by positive checks, which resolve themselves into vice and misery, or by preventive checks, that is, by moral restraint.

These propositions of Malthus have been the subject of long and heated controversy, the one side maintaining that they were in the main sound, and the other side claiming that they were disproved both by fact and by logic. This law therefore deserves to be examined in detail. The first proposition is merely an introduction and cannot be questioned. The third proposition in its present form seems valid. In the first essay, however, the preventive check was practically not included, for, although Malthus admitted the voluntary check in individual cases, he did not admit it, unaccompanied with vice, for a people as a whole. In its original form the theory held that misery and vice were inevitable, because they were the results of a natural tendency of the human race to multiply faster than the food supply. The insertion into the later edition of an alternative to the lamentable consequences of rapid multiplication gives a more hopeful tone to the essay, but at the same time it detracts from the definiteness of the conclusions. By the positive check is meant a high death rate; by the preventive check, a low birth rate. Now the birth rate and the death rate are obviously the only means by which numbers can be affected, barring migrations, which Malthus looked upon as merely temporary expedients. If, therefore, there are two ways of avoiding the condition of overpopulation, and it is admitted that a people may take either one, the conclusion is less significant than it would be if the human race was doomed to bear the unhappy consequences of only one method of restriction. Malthus's conclusion was that if the suffering inherent in the positive checks was to be avoided, preventive checks must be practised. The law in this form,

though true, is incomplete. The modern sociologist immediately asks under what conditions the positive or the preventive checks will operate. This question Malthus did not answer. His method of influencing the growth of population was by exhortation, — a method which has been used in our time, as well as in Malthus's time, without perceptible results. Although the third statement in the Malthusian law still leaves the population question open to further investigation, the statement as it stands is unassailable. One can hardly deny that both these ways of checking population are possible and both are in actual operation. In no country is the death rate at its minimum and the birth rate at its maximum. And Malthus's personal opinion that the preventive check would continue to act almost universally cannot be used to refute the law as stated.

The most extreme differences of opinion have occurred in connection with the second proposition that population tends to increase faster than food supply. The objections offered to this proposition are of two kinds: first, that population does not tend to increase as rapidly as Malthus maintained; and, secondly, that the food supply may be made to increase much more rapidly than Malthus thought possible.

In examining the first series of objections, several may be eliminated at the start as being inapplicable to the real teaching of Malthus. For example, it has recently become customary to compare the growth of the population with the growth of the total wealth of a country and to conclude that the Malthusian law is inapplicable to present-day society because wealth actually is increasing more rapidly than the population. Such comparisons are objectionable for several reasons. In the first place Malthus is not discussing manufactured products but food. Commodities produced under the law of increasing returns are not usually edible. And secondly, he necessarily refers to amounts and not to values of food products. If amounts of agricultural products were decreasing relatively to the population, their money value would of course tend to rise and this fact would partly conceal the decrease in the amount, when value is taken as the basis of comparison. Unfortunately wheat at \$2.00 a bushel provides no more sustenance than wheat at

\$1.00 a bushel. Lastly, statistical proof that the population is not increasing so rapidly as wealth, or even so rapidly as the food supply, is of no significance whatever unless it is shown at the same time that it is increasing at its utmost capacity. If population is not increasing so rapidly as wealth because it is held in check by one or both of the methods indicated by Malthus, this fact confirms rather than controverts his law. Critics seem to think that they are disproving Malthus if they show that population checks, especially the preventive check, are operative. Whereas the point of the Malthusian law is that one or the other check must operate. To disprove his contention it must be shown that neither check operates, and that population still increases less rapidly than the food supply.

Criticisms which are logically applicable to the theory that populations tend to increase more rapidly than the food supply usually follow some phase of the Spencerian principle, — that as evolution proceeds the reproductive power declines, or as the food supply diminishes, fertility declines. In both these cases it is likely that fertility does decline, but there is no evidence to show that it declines so much that it could not easily surpass the food supply. The second criticism, that fertility declines with food supply, seems to assume a slower increase of food supply with slower increase of population, rather than the possibility of an indefinite increase in the food supply. The decrease in fertility which is alleged to accompany a poorer food supply certainly has not been manifest in the actual birth rates of the poorest classes. Although the birth rate in the poorest class may not always be so high as in the class just above, it is still very high. Rowntree¹ gives the birth rate for the poorest section of York, where 69.3% of the population are in poverty, as 39.83, which cannot be considered a small rate of increase. The birth rate in the next to the poorest section was 40.32. In substantiation of the contention that the procreative power of the human race exceeds that of the food supply, Malthus cited actual cases of populations doubling under the most favorable conditions in 25 years or even less;

¹ Poverty, A Study of Town Life, p. 196.

and, although Bebel¹ claims that they are exceptional instances, they seem to be sufficiently substantiated to support the contention that the human species has that capacity for reproduction. Aside from instances of new countries, where the conditions are most favorable, several European countries have a high enough birth rate to double the population in about 30 years if it were combined with a low death rate. To be sure, it is not so combined and is not likely to be; but the point at issue here is solely the fecundity of peoples, not actual growth of populations, and there is ample evidence that the natural fecundity of peoples even with a scant food supply is high.

The other group of criticisms of Malthus's second proposition, relates to the possible increase of the food supply. It is claimed that a scientific exploitation of nature for food has hardly begun and the limit to its possible rate of increase is still far distant. A variety of arguments is given to support this position,² and they may be considered separately. In the first place it is pointed out that large areas of the earth's surface are exploited in a very imperfect manner or not at all, and Bebel suggests, moreover, that the food possibilities of the sea have hardly begun to be cultivated. This argument was considered by Malthus himself, who showed that migrations, or the bringing into cultivation of new areas, served merely to postpone the action of his law. Migrations may relieve for a time the pressure of population in a given area, but ultimately all available land surface will be utilized and then that form of relief for population expansion necessarily ceases.

Another line of argument is that progress in inventions and in the arts will continue to be sufficient to keep agricultural products ahead of all possible increments of population. In answer to this argument it may be said that economic laws are usually based on certain definitely known conditions, while improvement in the arts is an unknown variable. However, if it could be demonstrated that improvements would keep ahead of all

¹ *Woman under Socialism*, p. 368.

² This line of argument is well represented by Henry George's, *Progress and Poverty*, Ch. 4, and by August Bebel's, *Woman under Socialism*, Pt. V.

possible, not actual, growth of populations, it would have to be admitted that the law applied only to stationary, not to progressive peoples; and many supporters of the Malthusian theory now agree that the law is applicable only to stationary populations. Although it would be difficult either to prove or to disprove this contention, a few statistics may throw some light on the point. The United States is the country usually cited to illustrate the enormous increase in food supply during the last century, but it appears that this increase is due much more to the growth of farm acreage and means of transportation than to improvements in agriculture. From 1860 to 1880 the production of cereals in bushels increased 118% and the amount of improved farm acreage increased 74%. From 1880 to 1900 the production of cereals increased 64% and the improved farm acreage 45%.¹ It may be assumed that the new acreage produces at least as much as the old acreage; as a matter of fact the new lands in the Mississippi Valley produced much more than the old farms in the East. Allowing then for new acreage, cereals increased 44% between 1860 and 1880 and 19% between 1880 and 1900. It is true that the new farm land was not all devoted to the production of cereals; but the error involved would be inconsiderable, because it is the rate of increase only, not the total product, which is sought. During these same twenty-year periods the native population increased 59% and 51% respectively. These comparisons of course are not without error. They are intended to give rough approximations only; but they are sufficiently accurate to suggest strongly that technical improvements cannot be relied upon to increase food supply more rapidly than the maximum rate of population increase. As a matter of fact, "improvements in agriculture," upon which the reformers pin their faith, are for the most part labor-saving improvements. The solution of the problem of the food supply would require land-saving improvements.

Finally, one more criticism of the Malthusian theory deserves consideration, that is, that increase in population carries with it the power to supply the extra subsistence necessary. Bebel

¹ Bogart, *Economic History of the United States*, pp. 268-294; and Ely, *Outlines of Economics*, p. 529.

says; ¹ "The yield of the soil stands in direct ratio to the human labor expended, and the proper fertilizers applied to it," and Henry George maintains ² that the economies from subdivision of labor more than make up for any losses occasioned by resort to poorer soils, and he illustrates his point from the history of California, where he says labor was more productive in 1879 than in 1849. The objection brings into question the truth of the law of diminishing returns, or rather the interpretation of it. For it must be remembered that diminishing returns do not begin immediately after the first application of labor and capital. An increasing return to the maximum may precede the inevitable decrease. The point of maximum returns varies with different products and can be ascertained only by experiment, but a point of diminishing returns is finally reached in all extractive industries. It is quite possible that the productive power of labor may have increased in California in the 30-year period mentioned; but it would be rash to conclude, therefore, that it would continue to increase indefinitely with an indefinite growth of population. The law of diminishing returns is too well established by the experience of every farmer and too widely accepted as a theory to be lightly abandoned.

We may conclude then, that the essential propositions in the Malthusian theory have been only slightly modified by the attacks of critics. As evolution proceeds it is possible that the power of generation declines somewhat; and in advancing societies the progress of the arts and the advantages of greater co-operation and division of labor are undoubted influences in helping to defer the point of diminishing returns; but we have no reason to suppose that these influences are sufficient to render invalid the general principle that population tends to increase faster than the food supply.

Although the essential principles enunciated in the Malthusian law must be regarded as sound, the law is far from satisfactory because it fails to explain existing variations in birth rates among different classes and peoples. If birth statistics are explained in Malthusian terms, it is evident that an increase in

¹ Woman under Socialism, p. 363.

² Progress and Poverty, p. 134.

numbers is checked among the poorer classes by a high death rate, and among the middle and upper classes by a low birth rate. And inasmuch as the rate of increase is lowest among the wealthier classes, the conclusion is that the preventive check is more effective than the positive check; but the reason for the difference does not appear in the Malthusian theory. The objection to the Malthusian law is not that it is incorrect but that it is insufficient. In fact the theory leaves off about where a modern theory of population should begin. To explain variations in birth rates more must be known about the conditions under which population checks, especially the preventive check, act.

Dumont's theory. A helpful supplement to the Malthusian theory is to be found in the suggestion of Arsène Dumont¹ that population varies inversely with "social capillarity"; that is, the tendency to rise in the social scale. The valuable point contained in this formula is that if family burdens conflict with the maintenance of a given standard of living, the latter will be chosen in preference to the former. This fact, which seems to be of general application, accounts for the smaller rate of multiplication of the middle class, because it, under the present conditions of competition, has considerable difficulty in retaining or raising the standards generally prevailing in that class. In a modified form it explains too the small families of the upper class for, although large families would not in that circle interfere with standards of living so far as expense was concerned, they would interfere with personal comfort and with the performance of exacting social obligations, which after all do enter into standards of living. It helps also to explain the high birth rate of the unskilled laboring classes, for in their case maximum wages come at an early age, permitting youthful marriages, and standards of living are not so easily affected by size of family. The families of casual laborers may fall below the poverty line when the children are young, but they rise above it when the children have become wage earners; and the important point is that with them variations in fortune do not interfere with social standing.

¹ Dépopulation et civilization

This theory explains also the greater decline in the birth rate in the more progressive countries, for in those countries the standards of living are constantly rising and to maintain a social position more is necessary than the simple continuance of former standards; whereas in countries like Russia the great mass of the population has no hope of improving its condition, and hence no incentive exists for checking the procreative instinct. This law, which might be called the social law of population, includes more than the economic factor, although economic factors are probably the chief influences controlling the growth of population in the middle class. Yule¹ has shown that in England industrial conditions, as indicated by price changes, have affected directly both the marriage rate and the birth rate. The decline of the marriage rate is not sufficient however to make up for the decline in the birth rate. Leaving out of account the marriage rate, a direct correlation is to be found between economic factors and the birth rate. Newsholme and Stevenson² from their study of the decline of human fertility conclude that: — “It is associated with a general raising of the standard of comfort; and is an expression of the determination of the people to secure this greater comfort. It is not caused by a greater stress in modern life, but is a consequence of a greater desire for luxury.” Conditions indicate that social ambition is stronger than the parental desire; and, although this may be deprecated by those who emphasize the need of a rapid increase in population, the importance of an effective social ambition should not be minimized, for it furnishes the incentive to raise standards of living. It is true that in certain groups the social desire is exaggerated, possibly perverted, but this fact does not invalidate any normal expression of the desire. In the long run normal social ambition should not interfere with healthy family life. The recent decline in birth rate in certain groups is probably a temporary phenomenon, an attempt at readjustment to new and probably somewhat unhealthy industrial conditions. It seems to accompany concentration of wealth and the relatively poorer position of the middle and lower classes.

¹ Journal, Royal Statistical Society, March, 1906.

² Journal, Royal Statistical Society, March, 1906.

Summary of Influences Affecting the Birth Rate. Before proceeding to a discussion of the death rate, a preliminary statement of the laws of population may be made. The natural fertility of the human species seems to be sufficient to warrant a higher rate of increase than actually exists. In fact there is no reason to suppose that the fecundity of the human race as a whole has declined. The action of selection would be sufficient to keep up the fertility of the race, provided fertility was an inherited trait, and Pearson concludes that it is.¹ Infertile families would be quickly eliminated, and those who were least fertile would come to bear a smaller and smaller proportion to the total population.

No people is actually multiplying at its inherent capacity, both because death rates are higher than the minimum, and because birth rates are lower than the maximum. Many influences are at work to restrict the growth of populations in both these ways. The ultimate restricting factor would be a scarcity of food; but other causes usually intervene to limit numbers among civilized peoples long before they are in danger of restriction from starvation. In a country with plenty of fertile land, as was the case in the American colonies, early marriages and a high rate of multiplication are to be expected until the land is appropriated and class distinctions arise which alter the conditions of multiplication. In old and more stationary countries, like Austria, the population has accustomed itself to a particular standard of living; and the rate of increase is that permitted by the environment on the accustomed plane of living. If conditions of production do not change the birth rate remains comparatively stationary. If progress is stimulated and wealth increases, the added wealth may either be absorbed by an increase in numbers, or more wealth may be consumed per capita, thus raising the standard of comfort. Ordinarily both tendencies will be present. Those who feel the effects of the increased wealth first will probably consume more and others belonging to the same general class will imitate them. Those who receive the wealth later and more slowly will probably multiply more rapidly with little or no improvement in standards. Individuals

¹ See Grammar of Science, p. 462.

will try to hold to the standards in their own class, and if this becomes difficult under the new conditions, they will defer marriage or limit births rather than fall to the level of the class below them.

Three variables must be considered in the problem of population; the environment, by which is meant wealth producing possibilities, the standard of living, and the rate of multiplication, or at this point of the discussion we may say the birth rate. If the environment does not change, the other factors vary inversely. If a high standard of living is maintained the birth rate must be low, but if a low standard satisfies a people the birth rate will be high. In case the environment changes for the better, both the other factors might rise; and, in case the environment becomes less favorable, both might be lowered, though in the latter case the birth rate usually declines more rapidly than the plane of living. In case wealth producing facilities improve, either one of the other two factors might show the greater increase according to the character of the improvement. If the increase in wealth were gradual and small in amount, population would probably increase more rapidly, but if the increase in wealth were rapid and considerable in amount, the standard of living would probably rise conspicuously. Changes in the relative positions of the standard of living and of the birth rate might conceivably come from improvements in education or other psychological changes, but they are most likely to result from the stimulus of alterations in the external environment.

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CHAPTER XX

THE LAWS OF POPULATION: THE DEATH RATE

Deaths are **Either Natural or Accidental**. For the purposes of analysis the death rate should be divided into two parts: the natural death rate, and the casual or accidental death rate. All complex organisms are subject to the great law of disintegration. Each animal species has its own life cycle, and death at the end of that period is inevitable. Such deaths comprise the natural death rate. Death may be encountered, however, from various causes at any period of the life cycle, and such deaths may be called accidental.

The natural death rate, which is theoretically the lower limit of mortality, may be easily estimated provided the life period of a species be known. The life period of man however cannot be stated exactly. Karl Pearson, from his "mortality curve,"¹ placed the theoretical limit of life at 106.5 years, though he laid little stress on the exact figures, for the theoretical limit varied appreciably with slight changes in the curve. Certainly enough persons live to be 100 years old to show that such an age is within the limits of possibility for the species, and for purposes of illustration the number is a convenient one. However, it may reasonably be argued that 100 years is an exceptional age, and the great majority of persons who reach senility die at an earlier age, say 80 years. In fact Pearson's mortality curve shows that the largest number of those who reach the period of decline die at the age of 72.

If we assume that the life period of man is 100 years and that everyone lives to be 100 years old, — thus eliminating all accidental deaths, — then the death rate in a stationary population would be 10 per 1,000. On the other hand, if we assume that the life period is 80 years, the death rate under the same con-

¹ The Chances of Death, p. 29.

ditions would be 12.5 per 1,000. In a society in which the population is increasing, however, these rates would be materially lowered, for the number approaching the end of the life period would bear a smaller ratio to the total population. A population increasing at the rate of 20% in 10 years, which has been approximately the rate in the United States the last two or three decades, would have a mortality rate of 5.58, if 80 years be taken as the life period; and a rate of 3.54, if 100 years be assumed to be the life period.¹

In the United States at the present time it would be fair to take 5.58 as the natural death rate. The actual death rate in the registration area of the United States in 1917 was 14.2. This leaves a rate of 8.62 per 1,000, theoretically possible of elimination. But if 100 years be accepted as the life period, it would mean that 10.66 deaths per 1,000 would come within the possibilities of elimination. The accidental death rate can of course never be wholly overcome, nevertheless the natural rate gives a theoretical limit towards which society may direct its efforts. It should not be understood from these figures that of the actual death rate of 14.2, 5.58 is natural and 8.62 casual. Practically the whole of the present death rate may be called accidental. Less than a half of one per cent of the total population reaches the age of 80. As the casual rate is lowered, the natural rate will rise until it reaches 5.58, when the casual rate reaches zero. This figure presupposes, however, a rapid rate of increase of the population. As the rate of increase declines, the natural death rate will rise, simply from the fact of the smaller divisor, until it reaches 12.5 in a stationary population.

The elimination of accidental deaths does not mean that everyone must die of old age. Deaths due to diseases may be counted as natural, provided they come at or near the end of the life period. Progress in our control over disease is shown

¹ The formulà, which was given me by Professor William E. Story of Clark University, is as follows: —
$$d = \frac{e}{(1 + e)^m - 1}$$
 in which d is the death rate, e the rate of increase of the population, and m the assumed length of life.

by the decline in deaths from diseases attacking the young, like tuberculosis; and by the resulting increase in deaths from old age diseases, such as pneumonia and heart disease. We may hope to reduce the total death rate, but not the death rate for each disease equally. The forces of natural selection do not act to eliminate diseases which attack the individual after the reproductive period is passed. Medical skill alone must be depended upon to overcome such diseases, and medical skill is helpless after the organism is weakened by age.

Causes Determining Longevity. Turning now to a more detailed analysis of causes of death we may consider first the natural death rate, or, in other words, the life period.

Many explanations have been given to account for differences in duration of life for different species. One theory is that length of life with animals depends upon size. It is true that a rough relationship seems to exist between size and length of life in many species, but not in all. According to Weismann, the elephant lives 200 years, the walrus 100 years, the horse 40 years, the blackbird 18, the mouse 6, and many insects only two weeks. On the other hand, the pike and the carp live 200 years, the toad and the cat 40 years, certain small anemone 50 years, swine and crabs 20 years.¹

Others have tried to explain duration of life in terms of the vital processes, making it depend on the rate at which the animal lives. And, although this factor may furnish a useful check on the theory of size, it cannot by itself explain all the phenomena. Amphibia, which are sluggish, live, to be sure, for a comparatively long period; but birds, which are more active and have a higher temperature, are also long lived, usually surviving longer than the majority of amphibians of similar size.

Professor Minot traces length of life to the rate of cell change; but all explanations in terms of physiological changes seem to interpret age too much in its own terms. They give the process

¹ Weismann, *Essay upon Heredity*, Vol. I, Ch. 1, p. 6. It seems as though Weismann had got hold of some particularly robust specimens. In Buffon's day these animals were less hardy. He reports the following ages of animals: elephants 100 years, horses 30, carps 150, toads 36, cats and swine 20.

rather than the cause of decline. Cell changes as well as age itself require explanation.

Duration of life probably results from a rather complicated process of adaptation of several individual characteristics to the requirements of the environment. The constitutional characters involved include such traits as size, complexity of structure, and degree of activity. And adaptation to the environment means that the species, as well as the individual, must survive. Individual characteristics set certain limits to duration of life, but within these limits considerable variation is possible according to the needs of the species. Length of life then is probably one of several interrelated factors, being closely connected with the length of the period of growth and with the reproductive faculty.

To make this point clearer it will be helpful to refer again to Spencer's law of population, that generation varies inversely with individuation. Individuation may manifest itself in various ways, one of which would be length of life, and in most animal species length of life and rate of multiplication vary inversely. But such a formula would not fit the facts exactly. Another and more important form of individuation is individual development. If individuals of a species require little development after birth to adapt themselves to the environment, they may reproduce at a comparatively rapid rate and live for a considerable period also. If much individual development is needed,—and this is measured by the period of dependence of the young,—the rate of reproduction and the length of life cannot both be great. Metchnikoff¹ opposes the theory that low fertility always accompanies longevity, citing the cases of ducks, geese, and hens, which often live for many years notwithstanding their high degree of fertility; but in all these cases little development is required for adaptation to the environment. Weismann suggests that in their case length of life has developed to offset the frequent loss of life to which the young of such species are subject. And this is much the same explanation from another point of view. Such animals have developed small means of defence, or, in other words, their individuation is

¹ Prolongation of Life, p. 45.

slight, and they fall easy prey to their enemies. The doubtful point is whether they have developed a long life period because they are preyed upon by other species, or whether they are destroyed so easily by enemies because they are so numerous and have small means of defence.

It is evident that any species must adapt itself to its environment with a reproductive power at least sufficient to perpetuate the species. As the need of parental care increases fewer offspring are produced at a time and the reproductive period is gradually lengthened. For the human species the normal life then should be long enough to cover three periods, the period of infancy or dependence, the period of reproduction, and in addition a period approximating the duration of infancy, to enable parents to care for offspring born near the end of the reproductive period. Among the lower animals the first and third periods are short and in many cases the third is entirely eliminated, but in the human species these two periods are greatly prolonged. Among primitive men the period of infancy ceases at about the beginning of adolescence but among advanced peoples the requirements of education cause it to be extended beyond adolescence. The period of dependence in advanced societies must be considered to last approximately to the age of marriage, which may be roughly placed at twenty-five years (in England it averages 26.4 years for males and 24.8 for females). This leaves about 20 years for the period of reproduction. The third period, of care for late offspring, is rather indefinite in length. But these three periods together should bring the normal length of life up to sixty years at least. That is, individuals with a life period of less than sixty years would in the long run be at a disadvantage in the rearing of offspring. It is interesting to note in this connection that under present conditions the expectation of life for persons who reach maturity, — that is, of persons from 20 to 30 years of age, — is that they will survive to an age between 60 and 65 years.¹

Metchnikoff² believes that old age is brought on by the action of certain unfriendly bacteria, and if this should prove to be the

¹ Bailey, *Modern Social Conditions*, p. 338.

² *The Prolongation of Life*.

immediate cause of old age, a means might be discovered of counteracting for a time the effects of these bacteria. But the discovery of the immediate cause of old age would not disprove the fact that individuals have evolved, through the process of selection outlined above, having a particular power of resistance to these bacteria.

In conclusion it may be said that selection favors a certain minimum life period for those who reach maturity but that this minimum is below the actual attainment of senility. The life cycle of man, as well as of lower animals, seems to be associated with the rate of reproduction, the object of this relation being to ensure survival. From this point of view the average life of individuals reaching the reproductive age seems to be sufficiently long. If it is ever prolonged still farther, as many think it should be, the gain must come about through some other advantage than the mere survival of the race. And there are advantages of an individual nature. For example, selection may so favor individuals possessing endurance or special resistance to disease, that the life periods of a larger and larger number will be prolonged. Yet even then families possessing the requisite fertility without exceptional vitality, would survive, thus keeping down the average length of life. It is hard to see how the duration of life of a people as a whole can be prolonged unless in it inheres a survival value for the species. More perfect adaptation to the environment, however, will result in an increase in the average length of life and possibly also in a slight prolongation of the life period.

Probable Effects of an Increase in the Life Period. An increase in the life period would bring both advantages and disadvantages, some of which might be of sufficient importance to be included among the factors determining length of life in the long run through selection. On the side of social profit it may be said that as population increases with greater adaptation, the more strenuous competition resulting will require greater specialization and a longer period of preparation; and the prolonged life will in a sense offset the longer time spent in preparation, giving individuals an equal if not a greater period of activity. The longer the working life as compared with the period of

preparation the greater the economy. Therefore a longer active life would be advantageous as specialization progresses.

One of the dangers of the longer life period is from undue conservatism. Men are naturally more conservative after middle life than before it; and if the working time were lengthened it would mean that individuals would retain their positions longer and the average age of persons in active life would be greater. Extreme conservatism, however, is not necessarily a characteristic of maturer years, though increasing conservatism is. Conservatism means stability as over against change or progress. Now change is desirable so long as there is an immediate necessity for adapting the environment to needs; but it involves the use of a greater amount of energy in readjustments to new conditions. The time comes eventually when alterations in the physical environment are less urgent, the chief changes occurring in the social environment. It then becomes important to conserve the progress already attained and a larger proportion of those forces making for stability are desirable. Furthermore, as adaptation becomes perfected, society finds the experience and judgment which comes with maturity much more valuable than the mere enthusiasm and energy of youth. There is a great difference, however, between conservatives and reactionaries. If society should come to be controlled by reactionaries it would be a matter of regret, because such control would result in a stationary condition of society.

Another possible disadvantage of the longer life period is that men become less energetic as old age approaches, and consequently some enterprises would suffer by being in the hands of individuals no longer in the period of greatest activity. On the other hand, it may be argued that the total social energy would be greater, for more people would be engaged in active work and the added competition would stimulate increased effort. The problem would become one of the proper distribution of work between those of greater energy and those of greater experience.

On the whole it would seem that a gradual prolongation of the life period would be advantageous as adaptation is perfected, although extending the length of life without increasing adapta-

tion might result in loss rather than in gain to society. However, the more practical problem at the present time is that of reducing the casual death rate, because comparatively few individuals as yet attain what may be considered the normal limit of the life period.

Analysis of the Accidental Death Rate. The causes of accidental deaths from the social point of view may be divided into three classes: first, constitutional defects, such as heart disease, apoplexy, or premature births; secondly, imperfect adaptation to the physical environment, organic and inorganic, including all fevers due to the effects of microbes, starvation, etc.; thirdly, imperfect adaptation to the social environment, including suicide, murder, alcoholism, and kindred causes. The number of deaths falling into each of these classes cannot be estimated accurately from the reports of causes of deaths. But it would appear that in times of peace a very small proportion, probably not more than one-twentieth, result from imperfect adaptation to the social environment, while without doubt the great majority, not less than two-thirds, result from imperfect adaptation to the physical environment, the remainder being traceable to constitutional defects. Not all constitutional defects are inherited; and deaths resulting from those which are inherited are not always selective, for organic weaknesses frequently appear in serious form only late in life after children have been born who have inherited the weakness. When constitutional weaknesses appear early in life then deaths from them are closely allied to those resulting from imperfect adaptation to the environment, for a constitutional weakness may lessen the resistance of an organism to disease germs and individuals may die of fevers which normally they should have been able to withstand. However, the essential difference between these two causes of death is clear. In cases of constitutional weakness the chief trouble lies wholly in the organism, and in cases of imperfect adaptation the cause of the trouble is usually divided between the individual and the environment. A defect consisting merely of low powers of resistance to a particular disease germ is not here counted as an organic defect, though it may be inherited.

The elimination of inherited organic defects will have to be brought about through the process of selection; but in perfecting adaptation to environment, selection, though a possible means, is, under present social conditions, the slowest and most costly method of accomplishing the result. Ordinarily the adaptation should be active through a change in the environment, whenever scientific knowledge is sufficient to permit it. In case of deaths arising from lack of adaptation to the social environment the trouble may seem, in the first instance at least, to lie with the individual; but the individual is the result of his environment as well as of heredity and the most effective reform requires social improvement as well as individual treatment.

Summary. To recapitulate, the causes of accidental deaths may be traced chiefly to imperfect adaptation to the physical environment, a condition made worse by the severity of competition in the industrial world. Deaths traceable to this cause will be reduced by the progress of science, by a greater appreciation of the value of human life, and by an improvement in the condition of the poor. Secondly, this excessive mortality may be attributed to the birth of offspring having constitutional defects. Deaths from this cause may be reduced by an improvement in sexual selection, by an increased knowledge of the laws of heredity, and by a feeling of greater responsibility towards the second generation. And finally, a few deaths are due to imperfect adaptation to the social environment, and effective reform here requires both social and individual treatment.

Relationship Between Births and Deaths. Although the birth rates and death rates have been discussed separately in the last two chapters they are not entirely independent phenomena. Examination of the rates for different countries shows that in a general way the two vary together; countries with a high birth rate usually have a high death rate also, and a low birth rate is ordinarily accompanied by a low death rate. In explaining this phenomenon it will be found that both the birth and death rates react on each other, each being cause as well as effect. The tendency of a high birth rate to produce a high death rate is generally recognized. It was included in the Mal-

thusian teaching and has perhaps been over-emphasized. A high rate of reproduction causes over-crowding among the poorer classes, which conduces to less sanitary conditions and leads to the neglect of children on the part of parents. The result is a high rate of mortality, especially of infants.

On the other hand, M. March says: "The death rate governs the birth rate far more than the birth rate governs the death rate." A high death rate permits the continuance of a high birth rate. If the death rate should decline it would finally react to decrease the birth rate at least among that part of the population having the higher standards. The increased population resulting from the lower death rate makes the struggle for life more acute and lowers the birth rate among those who are influenced by "social capillarity." On the other hand a high death rate lessens the severity of competition and permits the birth rate to continue undiminished. The fact is that among people with low standards it is the birth rate which manifestly affects the death rate, while among people with high standards the death rate is the more active agent and it reacts upon the birth rate.

This automatic regulation of births and deaths is a part of the process of adaptation to the environment. To explain the process more fully we may revert to the three factors discussed in the previous chapter; the environment, the standard of living, and the rate of multiplication. The provisional statement that the birth and death rates vary together should now receive some qualification. The birth and death rates are both high or low in countries in which the environment is comparatively stable. With unchanging environmental conditions, if the standards of living are low, or in other words if the people are unprogressive, the birth and death rates will both be high. This is the condition in such countries as Spain, Austria, Bohemia, and Russia. If the standard of living is high, the birth and death rates will both be low. This is the case in most of the northern European countries. The birth and death rates may diverge more widely in countries in which wealth is increasing. In such a case the progress of science and sanitation may lower the death rate without having much effect on the birth rate, because the in-

creased wealth is sufficient to support a larger population at the accepted standards. This was the case in Germany previous to 1900, when the death rate declined more rapidly than the birth rate. During a transition period of this kind the decline in the birth rate lags behind the decline in the death rate because standards of living change slowly.

The Law of the Increase of Population. The conclusion reached from the discussions of the birth rates and the death rates may now be combined into a general statement of the law of population growth. The numbers of the human race, like those of other species of life, depend upon the environment. If conditions of life are easy, population will increase rapidly until conditions become more difficult, when the rate of increase will be lessened through the action of the environment. If the restricting force is the physical environment, population will be limited chiefly by a high death rate. If the restricting force is the social environment, population will be limited chiefly by a low birth rate.

A more specific statement regarding the action of the physical and the social environments cannot be made for the total population, because society is not a unit but is composed of different groups influenced by different motives. That part of the population influenced chiefly by the physical desires will tend to multiply more rapidly than the food supply and their numbers will be held in check by a high death rate. That part of the population influenced by the desire for approbation will limit their numbers to conform to their social positions. That part of the population influenced by cultural desires will also limit the number of births; but the limitation will be determined here by the nature of their work and their powers of achievement rather than by definite standards of living, hence the birth rate among them will be more variable.

Among the many possible measurements of the advance of civilization one would be the character of the dominant motives. Civilization advances as the social and cultural springs of action dominate over the physical; and one of the most important results of this psychological change has been the conscious regulation of population in accordance with social conditions. Thus

far the exercise of reason in the regulation of population has applied to a part of society only and hence a single law of population cannot apply to society as a whole and explain all existing phenomena.

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CHAPTER XXI

MIGRATIONS

Migrations will in this chapter be discussed only so far as they affect the numbers and character of populations. The causes of migrations are usually economic, political, or religious; but, in their effects upon population, the causes are of less importance than are the characteristics of the peoples migrating. Such points as the size of a migrating group, — that is, whether it consists of a large band, family group, or isolated individuals, — economic status of the migrants, their ages, sex, and conjugal condition, would all influence in turn the size and character of the populations concerned in the movement.

When migrations assume considerable proportions they affect the country which the migrants leave, — which we may call the emigrating country, — as well as the country to which they go, — the immigrating country. The effect on the immigrating country will be considered first.

Effects of Immigration. People migrate to two types of countries and with quite different results. They may go to a new, partly settled country, in which there is still plenty of free land; or they may go to a country which is already well settled, where competition is keen and class distinctions are in evidence.

The effect of a migration on a country of the first class is comparatively simple, and may be readily deduced from the general laws of population already given. As has been shown, a population under easy conditions of life will increase rapidly by an excess of births over deaths until the conditions of life become more difficult, when the rate of increase will be checked. Therefore the migration of peoples to a district where the conditions of life are still easy will populate that district more rapidly than would otherwise be the case and will hasten the

advent of that struggle for life which brings its own automatic check on the natural increase of peoples.

When people migrate to a country which is already well settled the results are more complicated and depend upon the economic class to which the migrants belong,—that is, whether they belong to the highest, the middle, or the lowest class in society.

When immigrants belong to the highest class. Immigrants form the highest class in a country when they come as a conquering people to settle in the territory of the conquered. Such migrants will usually form a large compact body and will evolve a more complex social life than the native population and will probably soon tend to multiply less rapidly and therefore become a smaller and smaller proportion of the total population. Whether or not they multiply less rapidly than the native population, their final assimilation is almost certain. In a conquering people males usually predominate and they marry native women; and, provided no caste distinctions are maintained, the native population being much the larger finally absorbs the conquerors. This was the fate of the Gothic invaders of Italy and of the Norman conquerors in England. If invaders wish to preserve their racial identity they must form a closed caste as a measure of racial defence, for a caste protects them from intermarriage and also from economic competition with the native population. The successive conquerors of India retained their identities by this method, as did also apparently the Incas of Peru.

When immigrants belong to the lowest class. That type of migration where the immigrants belong to the lowest class finds its best illustration in the modern movement from Europe to the United States. When such a movement is as large as this one has been in recent years, the migrants become a disturbing factor in the process of adaptation. According to the principles already stated in a previous chapter, a given population undisturbed by outside forces adapts its birth and death rates to its economic environment and standards of living. But a considerable addition of immigrants to the lowest class will make the struggle for life much more intense, thus altering the

economic environment. Now a change in the environment must also change either standards of living, or rates of multiplication, or both. That class in the population which has no special standard of comfort to maintain will show the effect of the excessive competition in a lower standard of living, indicated both by increased poverty and a higher rate of mortality, especially among infants. That class in the population which has acquired standards of comfort will show the effects of the increased competition by a lower marriage or birth rate, for it will not easily abandon its standard of living. The middle class, as well as the upper stratum of the lowest class, will be affected, and the results will be especially noticeable in the rising generation. The immigrants themselves may not become identified with the middle class, but they are likely nevertheless to compete with them either directly or indirectly and to render their position less secure.

This effect of extensive immigration on the birth rate has been felt in the United States, and is obvious in the birth rates for native and foreign born in Massachusetts and New Hampshire already presented, but the effect of increasing competition on the birth rate is shown more fully in the figures given by the United States Immigration Commission which investigated birth rates by nationalities in selected districts of the United States, — the state of Rhode Island and the cities of Cleveland and Minneapolis being chosen for urban rates, and 41 counties in Ohio and 21 counties in Minnesota for rural rates. The results are in complete accord with the theory of population here given. The birth rate of the native population was much lower than that of the foreign born.¹ The rural birth rate was higher for both native and foreign born than the urban, although the most recent foreign immigrants showed the least difference in this comparison. And finally the birth rate of the native born of foreign parentage held a position intermediate between that of the native and that of the foreign born. The significant points in these statistics are that the newest immigrants belonging to the lowest economic stratum show the least tendency to

¹ See Reports of Immigration Commission, Vol. 28, and Jenks and Lauck, *The Immigration Problem*, pp. 58-61.

restrict the birth rate, whether they live in urban or in rural districts. The older immigrants with higher standards have the smallest birth rates of the foreign born, while the children of immigrants, as they begin to conform to American standards, show the same tendency as the native Americans to restrict the birth rate. And in general the figures show that where competition is most severe the birth rate is most restricted.

The effect of higher standards of living and increased competition on the natural increase of population has long been recognized; and Francis Walker first advanced the theory that immigration did not add to the total population of the country, but merely served to substitute the foreign stock for the native. While Walker's theory contains much truth, it may require some modification or explanation. The effect of the racial factor in immigration is perhaps not so direct as his theory would imply, and the psychological influence may be overemphasized. The chief restriction upon population arises out of the struggles connected with increasing numbers; and the part played by immigration is to increase numbers and to intensify competition. That a declining birth rate is not traceable to immigration alone is evident from the decline in other countries where the conditions are not complicated by foreign immigration. The reason that immigration is sometimes spoken of as the cause of the slow increase of the native stock is that, in a country with the territory and resources of the United States, a decline in the rate of natural increase of the population would not be expected so soon; and immigration is therefore thought to be the factor which has hastened the decline. The fact would be difficult to prove by statistics, because a decline in the fecundity of the native population would be expected sooner or later under any circumstances. And no one can say when the decline would have started, or how extensive it would have been had the immigration since 1850 not been so large as to become a complicating population factor.

However, Professor Ellwood gives an interesting table showing the decline in the natural increase of the population of the United States coincident with the increase by immigration. It will be seen from this table that the rate of increase of the total

population has declined, especially since 1860, the decline in that decade being for the most part attributable to the Civil War. Nevertheless the extensive immigration of the late forties and of the fifties is thought to have had an effect. The immediate results of this immigration upon the rate of increase of the total population, which had gradually fallen from 36% to 32%, was to raise it to 35%, but the increase by births at the same time fell off. The chief point of this table is to indicate the rapid decline in the natural increase in the population in the face of heavy immigration. But there is also a slight evidence of fluctuations in the rate of natural increase of the population following fluctuations in the rate of immigration. The figures for the increase by immigration are based on arrivals, without allowance for departures or deaths, and therefore they exag-

TABLE XVI¹

Year	Total Increase <i>Per cent</i>	By Immigration <i>Per cent</i>	By Birth <i>Per cent</i>
1800	35.70	....	....
1810	36.38	....	....
1820	34.07	....	....
1830	33.55	....	....
1840	32.67	4.66	28.01
1850	35.87	10.04	25.83
1860	35.58	11.12	24.46
1870	22.63	7.25	15.38
1880	30.08	7.29	22.79
1890	24.86	10.40	15.40
1900	20.73	5.86	14.87
1910	21.02	11.57	9.45

gerate the influence of immigration. The real point of significance, which is intensity of competition, could not easily be indicated by statistics of immigration. These figures therefore must be taken to represent the general trend of changes in the population rather than an accurate measure of the economic influences at work.

Another indication of the effects of immigration is to be found in the fact that in the southern states, where immigration has been negligible, the rate of natural increase of the popula-

¹ Ellwood, *Sociology and Modern Social Problems*, p. 225.

tion has shown no such decline as it has in the northern states. This fact is of significance; but here again the conclusion is uncertain, because the economic conditions are so different in the two sections of the country.

The statistical evidence available, though incomplete, would at least support the theory that immigration was a factor in lowering the rate of increase of the native stock. While the degree of influence of this factor cannot be measured exactly, it seems probable that, while immigration adds to the population in the newer sections of the country, it does not increase it perceptibly in the older more thickly populated districts. Immigration doubtless adds less and less to total population as competition and class distinctions become stronger. Just when additions from immigration disappear, or become a minus quantity, as some writers maintain they do,¹ depends upon the standards of living maintained as well as upon economic opportunities. It is possible that immigration added something, though a diminishing amount, to the population of the East taken as a whole before the industrial changes of the seventies or eighties; but it is doubtful if it has added anything since then.

This tendency of immigration to substitute a lower class for an upper through differences in the birth rate is a serious danger to any society. Nothing need be said concerning the substitution of one race for another, which is an element also involved, for the relative value of different races and their adaptability to free institutions is a matter of opinion, often a matter of prejudice; but the total loss resulting from the continual displacement of an upper class by a lower should be emphasized. Although the total number of those constituting the middle class in this country may not be declining even relatively, the old native middle class is disappearing and the present middle class is retaining its relative position only through additions from below. This means that instead of starting the new generation from the middle class, with all the advantages which that class has to offer, society laboriously educates some members of the lowest class up to the standards and efficiency of the middle

¹ See S. G. Fisher, *Popular Science Monthly*, December, 1895.

class, only to have these new members disappear in turn through competition with a lower class which is ever being renewed from without. This process may go on indefinitely unless changing social conditions make it more and more difficult for members of the lowest class to rise, and under those circumstances the middle class would probably decline absolutely. Sacrificing the middle class to the lowest class is like sacrificing young manhood to childhood. A child has to be developed before it can reach its highest efficiency, and what that efficiency may prove to be is quite uncertain.

When immigrants belong to the middle class. Immigration of the middle class is the least common type, for ordinarily a society old enough to have strongly defined class distinctions loses members of its middle class by emigration to newer parts of its own country, if not to other countries, instead of receiving additions to its own by immigration. Nevertheless the United States is receiving some immigrants into the large cities who have the same general standards as the native middle class. The result of such immigration is to increase directly the economic struggle of the middle class with the result on the birth rate which has just been outlined. But in this case, unlike the preceding, there is an advantage in that the increased struggle will tend to result in the survival of the most competent. When persons of the same general standards of living compete within a particular district, those who are able most easily to maintain their standards can marry earlier and support a larger family; while those who maintain their standards with difficulty must defer marriage and have fewer children. If competition is between different classes, however, the inferior class will support larger families on a lower plane of living. To ensure the survival of the fittest, competition must be upon the same general plane; if competition is between individuals or classes of unequal standards of living, the lowest standard will prevail.

Summary. To sum up, it may be said as a general rule that, where population is sparse and class distinctions are not already clearly drawn, immigration adds to the population until competition becomes strong, when the natural increase of the popu-

lation will be checked. Here the advantage will lie with the most competent, and selection will be favorable. If class distinctions are well marked, the upper class is likely to suffer, whether it is native or foreign. If immigrants have a low standard of living their competition will render insecure the position of those of a higher standard who are affected by such competition, and the result will be a lowering of the plane of living for some, and a checking of the rate of reproduction for others. In this case selection will be adverse.

Effects of Emigration. The effects of strong movements of population upon the emigrating country are the reverse of the effects upon the immigrating country. The emigrants may leave sparsely settled districts, usually agricultural communities, or they may leave thickly settled districts; but the point of significance in ascertaining the effects of emigration is not whether the district is rural or urban, but whether or not it is over-populated. Rural districts as well as cities may be over-populated in the sense that they offer little opportunity for the population to support itself on the customary plane of living. Now it might seem as though emigration would take place only from over-populated districts, but such is not the case. Individual emigrants often can and do better themselves by leaving districts which cannot be classed as over-populated.

When emigration is from an under-populated district, it results in a loss to the total population; and it also makes conditions harder instead of easier for those who are left behind; because, so long as a given environment still offers favorable opportunity, larger numbers make life easier through the advantages to be gained from more extended coöperation. An example of a decrease in a population is to be found in the case of the Slovaks who are for the most part an agricultural people. They showed an absolute decrease between 1900 and 1910 from the excessive emigration of that decade, though the Magyars showed a gain.

When emigration is from a densely populated region the results are more complicated. The immediate effect is to lessen the intensity of competition there with two possible results. Population may increase more rapidly until the gap left by

emigration is filled, so that in the long run no diminution of numbers results; or emigration may so improve living conditions that those remaining at home will raise their plane of living and reproduce less rapidly. It is possible of course that these two influences may be combined and that there will be a lower rate of increase of population accompanied by a general improvement in the conditions of life.

Population may increase. The first of the possible results of emigration, that the population left behind may recover its losses by natural increase, is most likely to occur if the emigration is gradual and is made up of single individuals, and especially if the emigrants do not belong to the most prolific class. All these conditions have been well fulfilled in the emigration from most of the northern European countries, but much less completely so in the movement from southern Europe. Emigration from the south has been at times very rapid and it has been composed largely of the peasant class. In England and Germany the populations have kept up a high and comparatively steady rate of increase in the face of heavy losses through emigration. And even among the southern countries the total populations of Italy and Austria have increased more rapidly since the migratory movement began. The population of Italy increased in the 20 year period, 1861-81, before the migratory movement began, 10.5%, but in the next 20 years, when the movement was in progress, the population increased 13.4%.

Standards of living may rise. The second possible effect of emigration, loss to population, is most likely to occur if the migration is rapid and by families, and if the emigrants belong to the lowest class. These conditions were well fulfilled in the emigration from Ireland after the famine of 1846. It is said that in the five years following the famine almost a million persons died and more than a million persons emigrated.¹ And in the ten-year period 1841-51, the population decreased from 8,200,000 to 6,550,000. Since then the emigration has continued large and the population has shown no tendency to recover, but on the contrary has continued to decline. Ireland is the only country which has shown a decline in its total popula-

¹ Two Centuries of Irish History, p. 426.

tion through emigration, though the emigration from Italy in recent years has become so great as to threaten a diminution of her population. In 1905 the emigration per 1,000 inhabitants exceeded the difference between births and deaths, the former being 14.33, and the latter 10.6. Emigration did not continue at this rate, however, so that for the decade the population did not decline absolutely; it merely increased at a slower rate. Different sections of the country were affected unequally; some of the towns lost from one quarter to one half of their inhabitants, and the population of the whole province of Basilicata decreased.

Increase of population may be temporarily checked. In those countries in which emigration has not permanently checked the growth of the population, it has still had a temporary effect which should not be overlooked. A large migratory movement from Germany took place in the fifties and the annual rate of increase per 1,000 of the population dropped from 9.6 in 1845 to 4 in 1855, but recovered to 8.8 in 1860 and 9.9 in 1865. Emigration was exceptionally heavy again in the eighties and the decennial rate of increase dropped from 10.8% in 1880 to 9.2% in 1890. This migratory movement culminating in the early eighties was general in northern European countries, and the falling off in the decennial rate of increase was quite uniform. In England the rate fell from 14.3% to 11.5%, in Scotland from 11.1% to 7.7%, in Norway the decline was from 7.7% to 6.7%, and in Sweden from 9.5% to 4.8%. On the other hand those countries from which there was little or no emigration did not show any decline in their rate of growth during that period. Spain, Portugal, and Hungary showed exceptionally rapid rates of increase, and the Netherlands and Austria showed small increases, though the emigration from the Netherlands was moderately large during the eighties.

In case of those countries in which emigration is considerable it may be thought that the temporary decrease in the rate of growth represents a permanent loss even though the rate soon returns to the normal. This may very likely be true sometimes, but in most cases it is probable that the rate of increase would in the following years have been much smaller had it not been for the emigration. The effect of emigration upon numbers

seems in the long run to range all the way from absolute loss to positive gain.

Both birth rates and death rates may be affected. The advantages and disadvantages of emigration will appear from a more detailed analysis of its effects. The increase in population which usually follows emigration may result either from a decrease in the death rate or an increase in the birth rate. As emigration tends to lessen the intensity of the struggle for life, we should expect that the death rate would be lowered in those cases in which population is held in check mainly by a high death rate, and that the birth rate would be stimulated in those cases in which population is checked by a low birth rate. Or, to be more specific, in countries with low standards, where the birth and death rates are both high, emigration from the lowest class would be followed by a lowered death rate; and in countries with higher standards the birth rate might be stimulated provided the emigrants are not of the very lowest class. The statistics for the most part bear out these suppositions. In order to supplement Table IV, I have added in Table XVII the birth rates for five year periods since 1881, and have given in the second part of the table the excess of births over deaths for each period to show the relative rate of natural increase. In examining these figures it should be remembered that an emigration of young people would tend to lower the marriage and birth rates. If, therefore, the crude birth rate remains the same, it means presumably a larger number of births per marriage. In a similar way the loss from the population of young people would tend to raise the death rate of those who remain on account of the change in the age distribution of the population. If, therefore, the crude death rate remains the same; it would mean an actual decrease in the number of deaths.

After the heavy migrations from Germany and England in the fifties the birth rates rose in both countries. And although emigration continued large, in England the birth rate continued to rise until the eighties, the death rate remaining about the same. Emigration reached the maximum in the early eighties, and when it lessened the birth rate fell. The crude death rate increased in the eighties and began to decline only

after 1890. Germany seems to have suffered a temporary loss from the heavy emigration of the eighties, the birth rate remaining stationary while the death rate increased slightly, as was the case in England. In the nineties a lowering of the death

TABLE XVII

BIRTH AND DEATH RATES FROM 1881 TO 1906

	1881		1886		1891		1896		1901		1905 or 1906	
	B	D	B	D	B	D	B	D	B	D	B	D
Hungary.....	42.9	34.4	45.6	31.7	42.3	33.1	40.5	28.9	37.8	25.4	36.	24.8
Austria.....	37.5	30.5	38.1	29.5	38.3	28.1	38.	26.3	36.6	24.	33.7	25.
Germany.....	37.	25.5	37.	26.2	37.	23.4	36.3	20.8	35.7	20.7	33.	19.8
Holland.....	35.	21.5	34.6	21.8	33.7	20.7	32.7	17.2	32.3	17.2	30.4	14.8
Denmark.....	32.2	18.3	32.4	18.2	31.	20.	30.5	15.7	29.7	15.8	28.5	13.5
England.....	33.9	18.9	32.8	19.5	31.4	20.2	29.6	17.1	28.5	16.9	27.1	15.4
Scotland.....	33.7	19.3	32.9	18.9	31.2	20.7	30.4	16.6	29.5	17.9	27.9	16.
Ireland.....	24.5	17.5	23.2	17.8	23.1	18.4	23.7	16.7	22.7	17.8	23.6	17.
Norway.....	30.6	17.	31.2	16.2	30.9	17.5	30.2	15.1	29.6	14.9	26.5	13.7
Sweden.....	29.1	17.7	29.8	16.6	28.3	16.8	27.2	15.6	27.	16.1	25.7	14.4
Belgium.....	31.8	21.2	29.9	26.3	30.	21.2	29.	17.5	29.4	17.2	25.7	16.4
France.....	24.9	22.	23.9	22.5	22.6	22.9	22.5	20.	22.	20.1	20.6	19.9

EXCESS OF BIRTHS OVER DEATHS

	1881	1886	1891	1896	1901	1905 or 1906
Hungary.....	8.5	13.9	9.2	11.6	12.4	11.2
Austria.....	7.	8.6	10.2	11.7	12.6	8.7
Germany.....	11.5	10.8	13.6	15.5	15.	13.2
Holland.....	13.5	12.8	13.	15.5	15.1	15.6
Denmark.....	13.9	14.3	11.	14.8	13.9	15.
England.....	15.	13.3	11.2	12.5	11.6	11.7
Scotland.....	14.4	14.	10.5	13.8	11.6	11.9
Ireland.....	7.	5.4	4.7	7.	4.9	6.6
Norway.....	13.6	15.	13.4	15.1	14.7	12.8
Sweden.....	11.4	13.2	11.5	11.6	10.9	11.3
Belgium.....	10.6	8.6	8.8	11.5	12.2	9.3
France.....	2.9	1.4	.3	2.5	1.9	.7

rate, accompanied by a smaller decrease in the birth rate, permitted the population to more than recover previous losses. The fact that Germany's birth rate did not decline in the latter part of the eighties and in the nineties, as did the birth rate in the other industrial countries, is probably due partly at least to the

heavy emigration in the eighties. Since 1900, with a small emigration, the birth rate has declined considerably. The heavy emigration from Norway and Sweden which culminated in 1882 was also followed by a rise in the birth rates, and a still greater rise in the excess of births over deaths. Emigrants from all these countries have generally belonged to a class above the poorest.

Southern European countries, with their high birth and death rates, afford the best illustration of cases in which emigration is likely to result in a lower death rate. Emigration of young people from Italy has been so great as to lower both the marriage and the birth rates. The marriage rate fell from 8.06 in 1881-85 to 7.14 in 1896-1900, but rose to 7.7 again in 1910. And the birth rate fell from 38.1 in 1872-77 to 32.9 in 1900, with the same rate in 1910. But the death rate has decreased much more rapidly. In 1870-79 it was 30.8, but in 1900 it had fallen to 23.8 and in 1910 to 19.6. The figures show a decline in the birth rate of 5.2 per thousand and a decline in the death rate of 11.2 in the same period. The real divergence between the birth and death rates is even greater than the figures would indicate, because, as has been mentioned, a loss of young people from the population would in itself tend to lower the birth rate, but would raise the death rate, though not of course the absolute number of deaths.

Austria is another country with low standards and high birth and death rates; but it does not afford such a good illustration of the effects of emigration as Italy, because its emigration has not been so great nor has it continued for such a long period of time. Nevertheless here also the death rate declined more than the birth rate. Between 1886 and 1910 the birth rate fell from 38.1 to 32.6 or 5.5 per 1,000, while the death rate decreased from 29.5 to 21.2 or 8.3 per 1,000.

Too much stress should not be laid upon the connection between birth and death rates and emigrations, because it is incontestable that these rates are influenced by many conditions but the figures certainly accord with the theory given. It is true that the birth and death rates have changed also in countries where there has been no notable migratory movement; but

the changes have not been so great, so that migrations appear to be one of the factors influencing births and deaths. The conclusion is that the figures fully substantiate the contention that emigration does not usually cause a permanent loss to the population, the difference between births and deaths noticeably increasing after a period of heavy emigration. The figures seem also to support the theory that the divergence between births and deaths resulting from emigration is caused, in countries with high standards of living, by a stimulation of the birth rate, and in countries of low standards by a diminution in the death rate.

Advantages and Disadvantages of Emigration. If the foregoing analysis gives the true effects of migrations on the emigrating country, the advantages or disadvantages of such migrations are easily deduced. When emigration stimulates the birth rate, a society will lose by the exchange of adults for infants, even though the new generation may be as promising as the old, for the rearing process is costly and uncertain. But if the emigrants are superior individuals the loss will be greater, for those who remain at home and become parents will be inferior and the new generation will be below the average. In 1908 Manango concluded that the physical standards of young men in Italy were decidedly lower than they had been twenty years before.¹ It is said that in some towns few men remained who could pass the United States immigration tests. On the other hand it is conceivable that emigration might be of such a character as to improve the quality of the population. If it took the upper stratum of the lowest class, it might increase the birth rate of the more desirable middle class, although under the ordinary conditions of emigration this would not be a very probable result.

When a lowered death rate follows a period of emigration the danger is that the process of selection has been weakened, and that inferior persons are surviving, and that therefore the quality of the population is being lowered. Such a result may be much less serious in practice, however, than the theory would suggest.

¹ Antonio Manango, *The Effects of Emigration upon Italy*; *Charities and Commons*, April, 1908.

Natural selection is not a very exact force in human society. Many children who from lack of care fail to survive the trying period of infancy might not as adults prove to be inferior. In Italy, for example, the lowered death rate has been mostly among infants; and it is entirely possible that better care, resulting either from the higher wages which would have followed emigration, or from the money sent home by emigrants, might avoid needless waste of life with nothing but good effects. If adverse selection is not of practical importance, then a decline in the death rate may be counted as an advantage to society. But if the decline is caused by the emigration of young people it still results in the exchange of young manhood and young womanhood for infancy and old age; hence the disadvantages of emigration are but little less when the improved conditions result in a lower death rate than when they result in a higher birth rate.

When emigration is followed by an improvement in the standard of living, even at the expense of a loss to the total population, it is usually advantageous, because quality in a population is more important than quantity. Improvement in the standard of living, however, does not seem to be the ordinary result of emigration. Ireland presents the sole case of a population actually declining through emigration and there the population decreased to the extent of about half the numbers emigrating. Some rise in the plane of living might take place if the rate of increase of the population were checked, even though there was no actual decrease in numbers. In some towns in Italy, since the emigration movement began, new desires have been awakened in the population, and noticeable improvements in conditions have been made, while in other towns no perceptible improvements have resulted.¹ Improvements seem to be the result, however, of the return of emigrants and the increased wealth brought with them, rather than the effect of the lessened stress of competition in the home population. If any permanent improvement in the living conditions of a population results from emigration, it is likely to manifest itself in a lowering of the natural rate of increase. If the rate of increase returns to its old level after a few years, as is usually the case, it is doubtful

¹ Antonio Manango, *The Effect of Emigration upon Italy*, May, 1908.

whether any extended permanent improvement has taken place in living conditions.

Conclusion. In conclusion the general effect of migrations may now be briefly summarized. It has been pointed out that the migration of a low class to a country which has passed the first stage of settlement, tends to restrict the birth rate because it increases competition, so that the immigrants add a smaller and smaller net increase to the population, till a point is reached when the loss through lowered birth rate annuls the gain through immigration and no permanent addition to the population results. When this point is reached immigration merely effects the displacement of a higher class by a lower, and it may mean also the displacement of one race by another.

Migration from a country may cause a decrease in the population and an improvement in the conditions of life, though this is not the usual result. Under the ordinary conditions of gradual emigration, a population usually merely recovers its loss, either through a rise in the birth rate or a fall in the death rate. In either case an exchange is effected of self-supporting adults for dependent infants or perhaps for persons of advanced age. And in addition to this unequal exchange, emigration may be followed by an adverse selection through the survival of the physically inferior, which results in a deterioration of the population. It may be concluded therefore that migrations, from the point of view of effect on the population, are seldom of advantage to the emigrating country; they are even more rarely of advantage to the immigrating country, and they are never at the same time of advantage to both countries.

While the immediate result of migration is a redistribution of population by diminishing the number in the emigrating country and increasing the number in the immigrating country, this is not usually the ultimate result. Such a redistribution may be permanent, however, if the migrants leave a country under conditions similar to those which existed in Ireland and go to a new country. On the other hand migrations may in the long run serve to decrease or increase aggregate populations. Migrations from Ireland to the more thickly settled parts of the United States would furnish an example of a decrease in the

aggregate population, for it would diminish the population in the emigrating country and would not materially increase the population in the immigrating country. But migrations from most of the European countries to a new country would stimulate the aggregate population, for the numbers in the old country would not be materially lessened, while those in the new would be increased by practically the total number of immigrants. Finally, migrations such as take place from most of the European countries to a thickly settled country would illustrate the most peculiar phenomenon connected with great movements of populations, namely, that people may be transported from one country to another in considerable numbers without in the long run diminishing the population in the one country nor increasing it in the other.

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CHAPTER XXII

HEREDITY

The subject of heredity is of as much interest to sociologists as it is to biologists; and statisticians, as well as laboratory workers, have made contributions to our knowledge of the subject. Although many problems of practical as well as of theoretical interest are still unsolved, great progress has been made in the last twenty years, and some of the more important conclusions should be reviewed.

Heredity as a subject in sociology deals with those characters which the individual inherits from his ancestors and with the method of their transmission. It is therefore a subject of fundamental importance because it has to do with the characteristics of man himself and not merely with his social products.

Definitions. Before proceeding to the discussion a few technical terms should be defined. Biologists distinguish between heredity and inheritance. Castle defines heredity as "organic resemblance based on descent." On the other hand, inheritance, in the words of Thomson, "means all that the organism is or has to start with in virtue of its hereditary relation to parents and ancestors." A distinction is made also between inherited traits and congenital traits. Inherited traits comprise all those characters which are potentially represented in the fertilized egg cell, while congenital traits include all those present at the birth of offspring. The latter therefore is the more comprehensive term, because it includes those characters which the offspring may acquire during the period of prenatal development. Diseases, for example, are sometimes transmitted from mother to offspring during this period; but such transmission would not imply that they were inherited in the proper sense of the term. Still another distinction to be observed is that between variations and modifications, both of which are individual peculiarities not

present in ancestors; but variations represent changes which, for one reason or another, have taken place in the germ plasm itself, while modifications mean changes in the body brought about through environmental influence. That is, variations are alterations in the line of the germ plasm which may affect all future generations, while modifications are merely alterations in the individual.

Kind of Characters Inherited. With these definitions in mind it will be possible to obtain a somewhat clearer idea of the kind of characters which are transmitted from parents to offspring, although there are cases in which it is impossible to decide whether a particular character is inherited or acquired.

All characters potentially present in the germ cells are inherited, but this does not imply that they always manifest themselves. Even though continuing in the germ cells they are sometimes neutralized by other characters, or they lie dormant in a particular individual, appearing again in a later generation. Some of these traits are sex-limited, — that is, they appear only or almost exclusively in the male sex. Haemophilia and color-blindness are thus inherited. Though the female rarely shows the trait, she may transmit it from her father to her male offspring.

It still remains to ask just what are the characters which are carried potentially in the germ cells. (And while no exact answer to this question can be given, we do know that a wide variety of characters, physical, mental, and moral are present and therefore are heritable; but, as mental and moral traits seem to be more susceptible to modification through environment and also less capable of exact measurement than are physical traits, so their inheritance also is less possible of exact demonstration. Transmissible characters are divided by Howell¹ into three groups. First, anatomical, such as stature, color, facial features, and also certain physical defects like color blindness. Such characters are the most obviously transmitted of all. Second, physiological, such as thinness or obesity, voice, and characteristic gestures. Inasmuch as such characters may be more or less controlled and altered through imitation, their inheritance is not so absolute as is that of anatomical characters. Third, psycho-

¹ An American Text Book of Physiology.

logical, such as talent, temperament, artistic and moral traits, and certain mental diseases. These characters also are susceptible to education, and hence with them intensity of heredity is more or less concealed.

(The development of the individual then proceeds as follows. The infant starts in life with certain potential traits inherited from his ancestors, together with individual variations more or less pronounced; and to these may be added certain congenital traits, not inherited in the strict sense though differing but little from those inherited so far as effect upon individual life is concerned, since they are present at birth.) This ancestral endowment is then acted upon by external influences, with the result that its innate characters are more or less completely developed according to the nature of the environment. Environmental forces may of course affect the life of the individual very markedly for good or ill, but these environmental forces will affect the germ cells, and therefore the offspring, only in a general way if at all.

The Forms of Inheritance. An early classification of modes of inheritance, made by Galton, gave three distinct forms. First, blended inheritance, in which the contribution of more than one ancestor is manifest, and the character of the offspring is intermediate between those of the ancestors contributing. Good illustrations are skin-color and stature. Second, alternative or exclusive inheritance, in which the character is derived from one ancestor alone, the influence of other ancestors being neutralized. This is the usual form of the inheritance of eye-color. Third, particulate inheritance, in which the character comes from more than one ancestor, but the contributions remain distinct, forming a mosaic or patchwork instead of a blend. This form of inheritance is not common in the case of man, though it is sometimes seen in the coloration of the eyes and of the skin. It is more frequent in the coat-color of animals, illustrated by piebald horses, and by variegated colors in flowers.

These early distinctions made in the forms of inheritance were based, as was quite natural, upon the external manifestations of the characters in the body, rather than upon the mechanism of inheritance. If the mechanism of inheritance be con-

sidered, the peculiar manifestation of the character called particulate does not represent a separate form; and blended and alternative methods of inheritance represent merely variations of what now is supposed to be one single method of inheritance of all characters, that is, the inheritance of separate unit factors which may or may not constitute an entire character or organ. When the separate factors inherited do form an entire character in the individual, the inheritance appears to be exclusive; but when it takes several factors to make a complete character in the body, the inheritance appears to be a blend. It is convenient however to retain the distinction of blended and exclusive inheritance, even though the distinction is one of degree rather than of kind. And these two forms will receive preliminary consideration from the point of view of Galton's method of treatment, both because of its historical interest and because of its utility as a method of approach.

Galton's Laws of Blended Inheritance. The study of heredity has been promoted by three distinct methods. First, the statistical, in which degree of similarity between generations is estimated from large numbers of cases. Secondly, the experimental, by which an intensive study is made of the offspring of particular plants and animals to ascertain the exact mode of inheritance. And, thirdly, the microscopical study of germ cells, to ascertain the mechanism of inheritance. The results of the last method are too technical to be reviewed here. The statistical method will be considered first. This work was begun by Sir Francis Galton and has been extended by Karl Pearson, F. A. Woods, and by several psychologists. Galton's first conclusions were based on data taken from about one hundred and fifty families. Stature was used in the study of blended inheritance, and eye-color in that of exclusive inheritance.

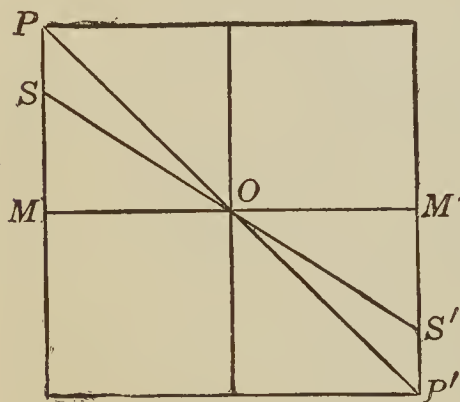
The law of ancestral inheritance. In blended inheritance the inherited character was thought to be derived from the whole ancestry, and therefore the problem concerned the relative contribution which each ancestor made to the heritage of the offspring. Galton's statistics showed that approximately $\frac{1}{2}$ the character was derived from the two parents, and $\frac{1}{4}$ from the four grandparents;

and he tentatively extended the series $\frac{1}{8}$, $\frac{1}{16}$, to more remote ancestry, though he admitted that his data were too limited to determine the exact contributions of distant generations. This estimate of ancestral contributions is known as The Law of Ancestral Inheritance. Karl Pearson has since measured inheritance in a much larger number of cases and has come to the conclusion that the contributions of immediate parents were underestimated in Galton's series. The geometric series approaching nearest to Pearson's measurements are the following:

Parents	.6284
Grandparents	.1988
Great grandparents	.0630
Great great grandparents	.0202

This series is known as Pearson's Revision of the Law of Ancestral Inheritance.

The law of filial regression. A second phenomenon of heredity studied by Galton is known as the law of filial regression, which means that sons of parents having an exceptional trait are not so exceptional on the average as their parents, but tend to revert to the mean. Taking an illustration from Galton's study of stature, he first ascertained the average height of the population, and then estimated the height of mid-parents, by which he meant the average height of the two parents after allowance had been made for the shorter stature of women due to sex. The height of mid-parents and the height of sons were then plotted above and below the mean as illustrated in the diagram.



MM' represents the mean of the population in stature, which in this case was found to be $68\frac{1}{4}$ inches. PP' represents the stature of mid-parents, and SS' the stature of sons. The line SS' shifts away from PP', or regresses towards the mean. In other words sons possess an exceptional trait but to a smaller degree than do the parents. The amount of regression Galton

estimated from his original figures to be about $\frac{1}{3}$, or, as he expressed it, sons retain $\frac{2}{3}$ of the exceptional traits of the mid-parents, that is, $M S$ is $\frac{2}{3}$ of $M P$. In other words if M represents the mean stature of the population and D the amount of deviation of the mid-parents from the mean, then $M + D$ will represent the stature of the mid-parents, and $M + \frac{2}{3} D$ will represent the stature of sons.

In the more recent work of the biometricians, the relationship between parents and offspring is expressed in terms of correlation rather than of regression. Correlation, as determined statistically, is merely coincidence of social phenomena;¹ but when used to measure an inherited trait it refers to the amount of similarity between parents and offspring, or the extent to which the offspring retain the character of the parent, whereas regression refers to the extent to which the offspring revert to the mean. In the diagram the angle $P O S$ indicates regression, and the angle $S O M$ correlation. If the stature of sons averaged the same as that of parents the line $S S'$ would coincide with $P P'$, indicating no regression, but perfect correlation. If the stature of sons did not resemble that of parents at all but conformed to the average of the population, $S S'$ would coincide with $M M'$. In this case regression would be complete and there would be no correlation at all.

The law of regression is merely a mathematical relationship and works both ways; that is, while sons of exceptional parents are less exceptional than their parents, it is also true that the parents of exceptional sons are less exceptional than their sons. If the height of all sons is plotted first, the height of mid-parents will be found to revert to the mean of the population, the regression in this case being $\frac{2}{3}$, or, in other words, the deviation of the mid-parents from the mean is $\frac{1}{3}$ that of sons. Anomalous as these results may seem, they present no real inconsistency. Sons of very tall men will on the average be shorter than their parents, though in individual cases they may be as tall or even taller. On the other hand, it is also true that the largest number of tall men have parents shorter than they are. This double relationship shows that exceptional men are

¹ Bailey and Cummings, *Statistics*, p. 135.

produced in two ways, through inheritance from exceptional ancestors, and through normal variations from less exceptional ancestors. And measurements prove that the greater number are produced by the latter method. This should not be interpreted to mean that exceptional parents are not more likely to have exceptional sons than are mediocre parents; they are much more likely to have them. But average parents constitute so great a majority that the few exceptional variations from them count for more.

This discovery should be of considerable significance to a theory of heredity and of racial improvement. Inspection of a correlation table, given in statistical texts, will help to make clear the twofold aspects of regression.

Since Galton's notable beginnings in the line of biometry, the work of estimating correlations has been greatly extended. While coefficients of correlation are used to measure hereditary resemblance, they are not limited in their applications to problems of heredity alone. A coefficient of correlation is a means of measuring the degree of resemblance between any two variables. The coefficient is a fraction, varying from 0 to 1, 1 representing perfect correlation and 0 no resemblance whatsoever. It may also be negative, which would mean that the two factors vary inversely.

Galton's original records of 150 families yielded the following coefficients of correlation for stature:

Offspring and parents	.3
Offspring and grandparents	.15
Offspring and great grandparents	.075
Brethren	.4

Later measurements, however, collected by Pearson, and taken from over 1,000 families, show a much higher degree of correlation between parents and offspring, and these earlier estimates have therefore been abandoned. Pearson found the coefficient of correlation for stature between parents and offspring to be .51, those for span and length of forearm were a little less, but the average for all three was .46. And still later measure-

ments have been made which make it seem probable that the average strength of inheritance between parents and offspring for physical traits could be expressed with a fair degree of accuracy by a coefficient of correlation of .5.

Galton's Law of Alternative Inheritance. Mention should be made of Galton's law of alternative inheritance, although it is now displaced by the Mendelian theory. The problem, as he conceived it, was somewhat different from that of blended inheritance. According to alternative inheritance the child received a character entire from one or another ancestor and the problem was to ascertain the degree of probability of his receiving the character from one of his immediate parents, or from a more remote ancestor. Galton concluded that in the case of alternative inheritance $\frac{1}{2}$ the offspring would take after one or the other of the immediate parents, and $\frac{1}{2}$ would revert to previous ancestors. Of the half that reverted, $\frac{1}{4}$ would take after the grandparents, $\frac{1}{8}$ after the great grandparents, etc. It will be observed that this is the same series as that used in the law of ancestral inheritance; but the two should not be confused. In alternative inheritance the series is known as the law of reversion; and it shows the probability of offspring inheriting a character entire from one or another of his ancestors, while the law of ancestral inheritance shows the proportion which the various ancestors contribute to the character of the offspring when that character is a blend.

Pearson later worked out the intensity of resemblance of eye-color in from eight hundred to fifteen hundred cases for each of the degrees of relationship; and also, in horses, the intensity of the resemblance of coat-color, and the results obtained are given in the table. In the third column he added the geometric series which most closely follows the observed results.

TABLE XVIII

	Eye-Color in Man	Coat-Color in Horses	Close Series
Parent and offspring.....	.49	.52	.50
Grandparent and offspring.....	.32	.30	.33
Great grandparent and offspring.....	.19	.19	.22
Great great grandparent and offspring ...		.15	.15

Inasmuch as the later studies show no marked difference in the strength of heredity of eye-color and for stature, the original distinction between blended and alternative inheritance has been abandoned by biometricians when estimating correlation. They now seek merely to ascertain degrees of resemblance between generations without regard to mode of inheritance. Some slight differences are obtained in the degree of correlation for different physical characters; but in general they range from .42 to .52 and the above series in Column 3 is thought to indicate approximately the degree of hereditary resemblance.

Limitations of the Statistical Method. The chief results of the biometricians are given here because they are both interesting and serviceable; but like all statistical material the results must be used with understanding and discretion. Inasmuch as the statistical method in biology has been severely, and sometimes unjustly, criticized, it may be well to explain some of its limitations. Coefficients of correlation merely indicate degree of similarity. They throw no light on the method of heredity and in fact do not prove heredity at all. The dangers in the use of coefficients of correlation are the same as those in the use of concomitant variations explained in Chapter I. They do not necessarily prove cause and effect. However, in case of physical traits which are known to be inherited, the supposition amounts to a certainty that the degree of correlation expresses hereditary relationship. In case of traits whose inheritance is uncertain the demonstration of inheritance, through a statistical statement of degree of resemblance between generations, is not always easy and sometimes may be misleading. The criticism of coefficients of correlation has been that they make no distinctions between inherited and acquired variations; and it is undeniable that the original measurements and comparisons do not. This fact, however, is not of sufficient importance to condemn the use of correlations altogether, for in many cases of human inheritance environmental influence is not a complicating factor. In other cases of inheritance of both physical and mental traits environmental influences may be present; and whenever they are, the disentanglement of the two factors of heredity and environment presents intricate prob-

lems. In a few instances where modifications and inherited characters might be confused the environmental influence has been pretty successfully eliminated by means of ingenious comparisons with new factors, so that the hereditary factor is left as the only plausible explanation of the correlation; but in other cases such eliminations cannot be made and the results are therefore doubtful. An illustration of an uncertain result may be taken from Pearson's study of tuberculosis. The coefficient of correlation for parent and offspring for this trait was found to be .5, the same as that of the inheritance of physical traits, so that the presumption favors inheritance. But nothing in this correlation proves that the resemblance was due to heredity rather than to infection. An attempt was made to eliminate the factor of infection by a number of new comparisons, one of which was the correlation for tuberculosis between husband and wife. This was found to be .24 for the middle class, but —.01 for the very poor, and .16 for the more prosperous poor. Inasmuch as there was no correlation for the disease between husband and wife in poor quarters where the danger of infection is supposed to be greatest, the similarity between parents and offspring was assumed to be the result of heredity. This conclusion could be accepted provided all persons, young and old, were equally subject to infection. But it is now an accepted fact that infection in the case of tuberculosis usually takes place in childhood, and therefore the possibility of environmental action does not seem to be entirely eliminated by comparing the condition of adults in the same household. This study seems to me therefore to furnish an example of doubtful results in the statistical method. It is probable that the correlation between parents and offspring arises partly from heredity and partly from direct infection. The fact that correlations offer no positive proof of inheritance seems to be no reason for discarding them as an aid to science. The fact is that heredity can be demonstrated only by measurements and deductions therefrom; and there is no gain in casting aside a convenient and accurate method of measurement and substituting for it an inaccurate one.

The above defect in anthropometry is merely in the nature

of a limitation; another defect charged against this method of investigation is more in the nature of an error. Pearson has said that the work of the biometricians makes no assumptions concerning the nature of the gametes, or sex cells, and this is true. But Pearl points out that it does make a biological assumption which is inaccurate. The biometrician tries to show hereditary relationship by somatic or bodily measurements, and the objection is that bodily conditions do not always represent the character of the germ plasm, and therefore somatic characters in one generation may bear no resemblance to somatic characters in the preceding generation. An illustration is color in fowls, where sometimes the offspring resemble neither parent. In such cases certainly the experimental method, or the intensive study of a single line for several generations, is the best, perhaps the only, method to be pursued. But cases in which somatic characters are not indicative of the character of the germ cells are much rarer in human heredity than they are among the lower animals. They are confined for the most part to certain abnormalities which skip a generation, or are sex-limited. With the great majority of human traits it must be admitted that somatic characters of offspring do bear a resemblance to those of one or the other parent. In the few exceptional cases where they do not, the irregularity would be anticipated from the correlations obtained, and the error could be rectified by intensive study of the inheritance of that particular character.

It is safe to say that the statistical method will continue to be employed as a useful adjunct in the solution of biological problems. The present prejudice against it arises largely from misconceptions as to its proper place and its limitations. When better understood, the method will be employed with greater discrimination; but it cannot be entirely superseded. In some kinds of problems it is indispensable, for it is the only method by which the characteristics of groups of individuals may be presented.

Evidence of the Inheritance of Mental Traits. The inheritance of mental traits is still questioned by a few skeptics who do accept the principle of inheritance of physical traits; but,

to the majority, the evidence seems conclusive that mental characters are inherited, and probably with about the same intensity as physical characters. Pearson made a study of between 3,000 and 4,000 school children to ascertain the hereditary resemblance for particular mental characters. As it was impossible to compare parents and offspring, he relied upon the resemblance between children of the same families (siblings). The correlation for physical traits had already been ascertained both for parents and offspring and for siblings, the former being about .50 and the latter about .52. It was assumed that a similarity in traits between children of a family indicated a similar correlation between parents and offspring, and therefore the inheritance of the trait. The mental characters reported were vivacity, assertiveness, introspection, popularity, conscientiousness, temper, ability, and handwriting; and the average correlations obtained were: brothers, .52, sisters, .51, brother and sister, .52.

A study¹ by Shuster and Elderton of ability as measured by honors received at Oxford by fathers and sons, gave a correlation between fathers and sons of .31, and between brothers of .40. These measurements however furnish a rather inaccurate test of similarity of ability, for not only do university standards change over long periods of time, but ideals among students, and incentives for taking honors, vary over shorter periods of time. The fraternal correlation is probably more dependable than the parental. The standings of boys at Harrow and Charterhouse were also compared and this study yielded a fraternal resemblance of about .40.

In the same field an interesting investigation has been made by Dr. F. A. Woods, on the inheritance of both mental and moral traits in royal families. The advantage of confining the study to royal families is that with them environment is in a sense similar and opportunity is in all cases ample. Woods obtained a coefficient of correlation of .3 for both mental and moral traits. Brief mention only need be made of Galton's well-known studies of genius in which he showed the extent to which exceptional ability ran in particular families. He found that exceptional

¹ Eugenics Laboratory Memoirs, I.

fathers produced exceptional sons at a rate from 3 to 6 times that of non-exceptional fathers; and exceptional pairs at a rate 10 times that of non-exceptional pairs. And Woods found that geniuses among royalty have 2.83 times as many relatives who are geniuses as mediocre persons have, if both first and second degrees of relationship are counted; and 4.25 times as many, if only the first degree is counted.

Of course the skeptic can still maintain that these similarities are due to opportunity and to family tradition rather than to heredity. But in Woods's study it was not at all true that all children responded similarly to the same environment. In certain families some children followed one line of ancestry and other children another in mental and moral as well as in physical traits. And it is also significant that superior ability in individuals tended to be grouped together for several generations, and degeneracy showed similar groupings; a condition which would be expected from heredity, but which would not be satisfactorily explained by environmental influence. Galton also gave an interesting example in support of the probability of heredity. It has been customary for popes to adopt children, usually nephews, and bring them up as sons, giving them every advantage of education and social position. Now if environment were the determining factor, it would be expected that these adopted sons would show the same degree of attainment as would be expected of ordinary sons of eminent men. They actually showed a much smaller degree of eminence, more like that which would be expected of nephews of eminent men. Further illustrations need not be given here as this general subject will be treated at greater length in the following chapter.

At the other end of the scale of mental caliber, defective and diseased mentality runs in families to such an extent that its hereditary nature cannot be doubted.

Exact measurements of mental characters are admittedly much more difficult to obtain than those of physical characters, and the psychologists have made a legitimate criticism of the correlations estimated for mental traits, such as those collected by Pearson, both because the characters used are very general and also because there is much liability of individual error in esti-

mating the characters of pupils. To avoid these errors psychologists have made much more exact tests of particular traits; but in most cases these tests have given a correlation for intelligence as high, if not higher, than those of Pearson; consequently it may be assumed that enough cases were included in Pearson's study to overcome the dangers from individual errors of judgment.

That general mental efficiency is inherited both in extreme and moderate degrees is the conclusion of Cyril Burt.¹ And special mental characters are probably inherited also. With regard to these mental characters it is interesting to note that the evidence, which is as yet admittedly meagre, points to the conclusion that the lower and simpler processes appear to be more dependent on heredity than the higher and more complex; the emotional more than the intellectual; and the intellectual more than the moral.

This suggests the possibility that after all differences of opinion concerning the inheritance of mental characters may be due to a misunderstanding, or to a diversity of opinion, as to just what is meant by mental traits. Cyril Burt rightly distinguishes between capacity and content of mind. It is for ability only that the claim of inheritance is made. The things we learn are entirely a matter of our surroundings. Actual intellectual attainment is probably the result of a combination of several mental traits. And the same is true of moral attainment which is due to the association of a number of traits, such as strength of the passions, self control, and sensitiveness to the judgment of other. Furthermore, in addition to the fact that mental and moral traits are complex instead of simple characters, they act only in response to external conditions; and different environmental conditions may bring into activity different mental traits, so that the environment appears to be more of a determining influence than it actually is.

Mendel's Law of Heredity. Turning next to the use of experimental methods in studying heredity, it will be found that biologists have made considerable progress in ascertaining the mode of inheritance, as distinct from the statistical measure-

¹ *Eugenics Review*, 4: 168.

ment of the strength of inheritance. The experimental method involves a somewhat different point of approach from the biometric. The material is usually obtained from plants and animals, since experimentation on man is practically impossible. This gives a great advantage in that matings can be controlled and the character of all the offspring known. Furthermore, reproduction is sufficiently rapid so that several generations may be accurately studied. The data for human heredity is usually defective. The best measurements are obtained from contemporaries, especially from school children, but information concerning previous generations is bound to be faulty and often is entirely lacking. Experiments on lower organisms then give more accurate conclusions. The danger here is of a too hasty assumption that the mode of inheritance in simple organisms applies without modification to human heredity.

The great achievement of the experimentalists has been the formulation of what is known as Mendel's law, and in the later modifications and refinements of that law. According to Galton's classification Mendel's law would be a law of alternative inheritance; but, with certain modifications which will appear later, it is generally considered to be the universal law of inheritance. In its simplest form Mendel's law may be illustrated from the original experiments made on peas. If two varieties containing contrasted characters known as allelomorphs, such as tall and dwarf peas, are bred together, the character of one variety only will appear in the hybrid plant, the character of the other remaining latent. The character which does appear is called dominant and the other is recessive. In the case of peas tallness proved to be dominant, and the hybrid plant resembled the tall variety. This is known as the principle of dominance in Mendel's law. - If now the hybrid plants are allowed to fertilize each other the characters of the two original varieties again reappear in the offspring; and they are found in the ratio of three dominants to one recessive. Of the plants which resemble the dominant plant, however, $\frac{1}{3}$ prove by breeding to be of the pure dominant variety, and $\frac{2}{3}$ to be hybrids. If dominants are fertilized by pure dominants, they breed true to the type, producing only dominants; and the

recessives produce only recessives, while hybrids continue to produce all three varieties in the proportion of one dominant and one recessive to two hybrids. The result of the breeding may therefore be expressed as follows, letting D stand for the dominant, R for the recessive, and D(R) for the hybrid type.

$$\begin{array}{c}
 D \times R \\
 | \\
 D(R) \times D(R) \\
 | \\
 \hline
 \begin{array}{ccccc}
 DD & & 2D(R) & & RR \\
 | & & | & & | \\
 DD & DD & 2D(R) & RR & RR
 \end{array}
 \end{array}$$

In some cases hybrids may be distinguished from pure dominants by their appearance, and in some cases they can be distinguished only by further breeding. The splitting up of the hybrid into the two original varieties results from the law of segregation, which is perhaps the most important point of Mendel's discovery. The law of segregation simply means that the character of the two original parents both exist in the seed of the hybrid plant, though the dominant character only may appear in the plant itself. Therefore the result of the crossing of hybrids is simply the chance combinations of the two characters which exist in the seed for $DR \times DR = DD + DR + DR + RR$. The results of other combinations may be worked out similarly from the law of chance. Thus if the dominants, DD, and the hybrids, DR, are crossed, the result will be dominants and hybrids in equal numbers. In the same way if recessives RR, and hybrids, DR, are crossed, recessives and hybrids will be produced in equal numbers. Such crossings are sometimes convenient to use as extra proofs of the law of segregation.

Modifications of Mendel's Simple Formula. The simple formula of inheritance already given has been verified by a large number of experiments, for a variety of characters, on such plants as peas, wheat, and maize; and on some of the lower animals, notably mice, rabbits, poultry, and cattle. But further experiments have presented many apparent exceptions which have caused modifications in the original formula, so that inheritance of certain traits appears to be extremely complicated. The

first exceptions noted concerned the principle of dominance. In experiments on the color of flowers and on various characters of poultry, it was often found that the hybrid did not show a pure dominant trait but was influenced more or less by the recessive trait even to the extent of a blend of the two characters. This fact is not inconsistent with Mendel's formula but serves to bring out some of the complexities of inheritance. Dominance is now regarded as merely a matter of degree. The nature of the characters crossed may be such that in combination one has little or no influence in determining the character of the hybrid; or their nature may be such that they are approximately equipotent in determining the character in the offspring. Dominance is usually noticeable when one character is positive and the other is negative; for example, a color is dominant over lack of color or albinism, though it is not always dominant over white. In other cases, where the character is not negative, but is still recessive, such as short hair recessive to long hair in animals, one explanation is that short hair contains a positive determinant which inhibits hair growth, and the presence of the determinant is dominant over its absence. However, it is unsafe to predict the dominance of a character without experiment, for sometimes unexpected results are obtained. Other exceptions concern the unit character theory and are even more difficult to work out. Many traits have been found in which the crossing of hybrids fails to produce the original characters but continues to produce some form of a blend. A familiar example in man is that of skin-color, and in the lower animals Castle obtained blends in his experiments on ear-lengths of rabbits and on the size of the various parts of the skeleton; and Bonhote found cases of continuous blends in his experiments on ducks. The explanation of this phenomenon is that certain body characters are not indivisible units but are composed of several factors which are the real units of inheritance. These factors remain distinct and segregate according to Mendel's law; but, inasmuch as many unit factors enter into a single character, these characters in future generations actually appear as varying combinations of the composite factors. These exceptions will be discussed in connection with the subject of human heredity.

Inheritance of Physical Traits in Man. Inheritance in human beings, which is the most interesting part of the subject for sociologists, seems to be more complicated and to present more exceptions to Mendel's law than does inheritance in plants and lower animals. This may be apparent only, due partly to the difficulty of collecting material, for human inheritance is a slow process, experiment is impossible, and accurate data are difficult to obtain for every member of a family through several generations; not to mention the fact that occasionally, perhaps frequently, individuals have failed to mate and reproduce with due regard for the complete vindication of the Mendelian principles.

A few characters in man do seem to behave as simple Mendelian units. The abnormality known as brachydactylism (two finger joints instead of three) seems to follow Mendel's law as a dominant character, though the case is only partially proved. None of the families reported either by Farrabee or by Drinkwater contained cases of marriage of two abnormals. Normal parents produce no abnormal offspring. Matings between normals and abnormals produce equal numbers of normals and abnormals, showing that the abnormals are hybrids, if the case is Mendelian in character. The partial, incomplete data gathered are in accordance with Mendelian expectations; but the best proof of segregation would come from the mating of two abnormals, which should produce both normal and abnormal offspring; and such matings have not been found. Night-blindness, haemophilia, and several other abnormalities, are also inherited as unit characters. Left-handedness is reported by Jordan, by Hurst, and by Ramaley as roughly fulfilling the requirements of a recessive character, though Hurst makes the provision that ambi-dexterity be counted as original left-handedness. Musical talent is thought by Hurst to be a recessive Mendelian trait, but this trait, as has been shown,¹ is a complex character, and therefore it is very doubtful if it could be made to fit into Mendel's formula as a simple recessive. Longevity is doubtless inherited, and Pearl presents some evidence to show that it follows Mendel's law, with short life recessive.

¹ See Musical Quarterly, 6: 586.

Human eye-color is supposed to follow strictly the Mendelian law, dark eye-color being dominant over blue or gray. Children of pure brown-eyed and blue-eyed parents will all be brown-eyed, though possibly the shade of brown will be lighter than in the parent. These children, however, will carry also the blue determinant; and they are technically called heterozygous, or simplex, for the character. A heterozygous, brown-eyed person mated with a blue-eyed person will have dark-eyed and blue-eyed offspring theoretically in equal numbers. If both parents are heterozygous they will have blue-eyed as well as brown-eyed children in the average ratio of 1 to 3. If both parents are blue-eyed, all the children will be blue-eyed. If both parents are pure brown-eyed,—technically called homozygous for the character,—or duplex, all their offspring will be brown-eyed. This is the conclusion reached by Davenport, and is usually accepted as the rule of inheritance for eye-color; but it is only fair to say that Pearson, Boas, and Holmes have all reported cases inconsistent with Mendel's law; and it is not certain that eye-color is a good illustration of simple Mendelian inheritance in man.

The inheritance of skin-color may be presented in some detail because it illustrates the principle of several independent factors combining to make up a character. Skin-color in the offspring of negro and white appears to be a blend; but Davenport has definitely shown¹ that the color of the negro is made up of four distinct colors; and this permits five possible combinations,—no factor for black, one factor, two factors, three factors, or four factors. The offspring of two mulattoes show a wide range of variation from pure white to quite dark, because of the four possible factors, any one of which will darken the skin, and which may be inherited in varying combinations. The white children would be pure recessives and produce only white children; but where so many factors are involved the pure white is seldom found. In case of a single unit character, it has been shown that one in four will be a pure recessive. But if a larger number of factors are involved the original character will appear much less frequently. The following table gives the number of

¹ Journal of Heredity, 5: 556.

cases necessary, when several factors are present, to produce the original character according to the law of chance:

If 2 characters are involved		16 individuals for 1	recessive.	
" 3	" " "	64	"	" " "
" 4	" " "	256	"	" " "
" 5	" " "	1,024	"	" " "
" 6	" " "	4,096	"	" " "

Inasmuch as four factors are involved in skin color, only one in every 256 offspring of mulatto parents will be pure white. And even then such an individual would not be likely to be a Caucasian, for skin-color is not linked with curliness of hair, or with facial features, and the rare individual with pure white skin-color might still have other negro features.

To ascertain the mode of human inheritance, a separate study has to be made of each character. Much remains to be done along this line, but the characters which have been studied, with their probable mode of inheritance, are given in the following table taken from Castle's *Genetics and Eugenics*.

INHERITED CHARACTERS IN MAN

1. *Blending*

General body size, stature, weight, skin-color, hair-form (in cross section, correlated with straightness, curliness, etc.) shape of head and proportions of its parts (features).

2. *Mendelian*

<i>Dominant</i>		<i>Recessive</i>
Skin and hair	Dark	Blonde or albino (probably multiple allelomorphs).
	Spotted with white.	Uniformly colored.
	Tylosis and ichthyosis (thickened or scaly skin).	Normal skin.
	Epidermolysis (excessive formation of blisters).	Normal skin.
	Hair beaded (diameter not uniform).	Normal hair.
Eyes	Front of iris pigmented (eye black, brown, etc.).	Only back of iris pigmented (eye blue).
	Hereditary cataract.	Normal.
	Night blindness (When not sex-limited).	Normal.
	Normal.	Pigmentary degeneration of retina.

Skeleton	{	Brachydactyly (short digits and limbs).	Normal.
		Polydactyly (extra digits).	Normal.
		Syndactyly (fused, webbed, or reduced number of digits).	Normal.
		Symphalangy (fused joints of digits, stiff digits).	Normal.
		Exostoses (abnormal outgrowths of long bones).	Normal.
		Hereditary fragility of bones.	Normal.
Kidneys	{	Diabetes insipidus (excessive production of urine).	Normal.
		Normal.	Alkaptonuria (urine black on oxidation).
Nervous System	{	Huntington's chorea.	Normal.
		Normal.	Hereditary feeble-mindedness.

3. Mendelian and Sex-Linked

(Appearing in males when simplex, but in females only when duplex.)

<i>Dominant</i>	<i>Recessive</i>
Normal.	Gower's muscular atrophy.
Normal.	Haemophilia (bleeding).
Normal.	Color blindness (inability to distinguish red from green).
Normal.	Night blindness (inability to see in faint light).

4. Probably Mendelian but Dominance Uncertain or Imperfect

Defective hair and teeth or teeth alone, extra teeth, a double set of permanent teeth, hare-lip, cryptorchism and hypospadias (imperfectly developed male organs), tendency to produce twins (in some families determined by the father, in others by the mother), left-handedness, otosclerosis (hardness of hearing owing to thickened tympanum).

5. Subject to Heredity, but to what Extent or how Inherited Uncertain

General mental ability, memory, temperament, musical ability, literary ability, artistic ability, mathematical ability, mechanical ability, congenital deafness, liability of abdominal hernia, cretinism (due to defective or diseased thyroids), defective heart, some forms of epilepsy and insanity, longevity.¹

Inheritance of Mental Traits in Man. Turning from purely physical characters to the more important mental traits, the problem of inheritance becomes still more complicated and elusive. Genius, feeble-mindedness, epilepsy, and insanity, are

¹ W. E. Castle, — Genetics and Eugenics (1920) p. 272.

all inherited, but the method of their inheritance is not established. Davenport's latest conclusion (1920) is that all three of these mental defects are inherited as simple Mendelian recessives. And he has suggested that genius may also be recessive, which would make average mentality dominant over either extreme. Holmes, on the contrary, believes that superior intelligence always tends to be dominant over inferior intelligence.

Feeble-mindedness. If feeble-mindedness follows the simple Mendelian formula, then the offspring of two feeble-minded parents will always be feeble-minded. The offspring of normal and feeble-minded will all be normal, though they will carry the trait of feeble-mindedness (simplex). The facts collected thus far fail to verify this theory. The records show, it is true, that the offspring of feeble-minded parents are usually feeble-minded, though in Goddard's reports, which were institutional and therefore selected cases, a few exceptions occur, and in the study of the Hill-folk, by Danielson and Davenport, which was an investigation of the entire pedigree of a degenerate stock, many exceptions appear. This last study yielded the following results, which for convenience are compared with the expected results according to the Mendelian hypothesis:

TABLE XIX

No.	Matings	% of Defectives	
		Expected	Found
1	NN x NN	0	0
2	NN x Nn	0	0
3	NN x nn	0	37.5
4	Nn x Nn	25	33.2
5	Nn x nn	50	53.6
6	nn x nn	100	77.3

N = Normal and n = Feeble-minded.

Here only 77.3% of the offspring of feeble-minded parents were feeble-minded. While there is of course considerable possibility of error in determining the mental condition of an individual in a broad study of this kind where accurate tests are not used, a discrepancy of almost a quarter of the cases would probably not be obtained merely as the result of errors in classification.

Furthermore, the early theory that normals were dominant over feeble-minded is not borne out by the data. In case No. 3, matings of normal with feeble-minded, 37.5% of the offspring were defective when all should be normal. And Holmes,¹ who has studied carefully the family records in other investigations, reports that in the Kallikak family feeble-minded offspring resulted from over two-thirds of the cases of normal and feeble-minded matings. And in Goddard's charts he found that out of 30 matings of feeble-minded with presumably normal individuals, all but two produced some feeble-minded offspring. These results show anything but complete dominance of normal intelligence.

If mental defectiveness is due to the absence of a single character, as Davenport believes, then dominance is uncertain or imperfect. This explanation would cover the facts. And imperfect dominance is common enough with physical traits so that the same assumption for mental traits would not be unreasonable. However, if matings between normal and feeble-minded produced feeble-minded as well as normal offspring, then some feeble-minded are simplex; that is, they carry the determiners for normal intelligence as well as for feeble-mindedness. And this fact would explain also the occasional appearance of normal individuals from matings of feeble-minded, for the feeble-minded who are simplex, or hybrid, would produce some normal offspring.

Still, another explanation fits the facts more closely. The offspring of defectives usually show varieties and gradations of defectiveness, including feeble-mindedness, epilepsy, and varying degrees of neurosis. The usual supposition in such cases is that more than one factor is involved. When a trait is a single unit character, so that segregation is complete, offspring usually show clearly either the presence or the absence of the character, and not varying degrees of it. Both Popenoe and Holmes favor the theory of multiple factors. Even under this supposition, however, it would not seem likely that many factors were involved. Original characters are too frequently reproduced, and the offspring are not near enough like blends, to

¹ Trend of the Race, pp. 35 and 36.

indicate that many factors are present. Popenoe's supposition that the several factors constituting feeble-mindedness usually hold together, but may be broken up if the right combinations in parents are brought together, is a plausible one.

Those who maintain that normal mentality is a single unit character and feeble-mindedness a Mendelian recessive, explain the appearance of feeble-minded offspring in matings of normal and feeble-minded, by assuming that the supposedly normal parent was really simplex and carried recessively the trait of feeble-mindedness. This supposition, made to bring the facts into line with the Mendelian hypothesis, cannot be easily disproved; but it involves a disagreeable deduction with regard to the population as a whole. Punnett maintains,¹ that considering the actual number of feeble-minded in the United States, it is necessary to suppose that 10% of the population are heterozygous for feeble-mindedness and about 30% carry some neuropathic taint. Even with the aid of this extreme supposition the occasional birth of normal offspring from two feeble-minded parents is not explained. Such cases are either ignored or else they are assumed to be errors of the collaborators. Needless to say, a theory is not convincingly proved when one is forced to assume that all the returns which contradict the theory are errors and all those which support it are correct. Either of the other theories would seem to be a simpler and at the same time a more adequate explanation.

Epilepsy. Epilepsy is closely associated with feeble-mindedness and the two cannot be entirely separated in a study of inheritance. Our knowledge of its inheritance is chiefly dependent upon a preliminary study made by Davenport and Weeks and a later enlarged report by Dr. Weeks. The last included 440 families, and the results of the more important matings are tabulated below.

¹ Journal of Hereditary, 8: 464.

TABLE XX
INHERITANCE OF EPILEPSY.¹

	No. and Character of Matings	No. of Conceptions	Number Classified	Character of Offspring			
				Epileptics	Feeble-Minded	Tainted	Normal
	<u>RR × RR</u>						
1	3 Ep × Ep	28	19	8	3	8	
2	15 Ep × F	81	55	28	26	1	
3	5 Ep or F × I	29	22	2	4	8	7
				61 %		39 %	
	<u>RR × D(R)</u>						
4	35 Ep or F × A	226	126	39	38	28	21
5	25 Ep or F × T	161	77	27	9	24	17
				46 %		54 %	
	<u>RR × DD</u>						
6	38 Ep or F × N	223	125	39	14	26	46
				42 %		58 %	
	<u>D(R) × D(R)</u>						
7	84 T × T	540	336	97	17	.....	
				35 %			
	<u>D(R) × DD</u>						
8	120 T × N	790	447	130	15	.....	
				30 %			
	<u>DD × DD</u>						
9	76 N × N	441	276	75	3	25	172

¹ Also one insane.

Ep. = Epileptics, F. = Feeble-minded, T. = Tainted, I. = Insane, A. = Alcoholic, and N. = Normal.

In this table the “tainted” are supposed to be simplex. They are neurotic and show signs of mental instability. Dr. Weeks concluded from these returns that while epilepsy itself cannot be considered a Mendelian factor, when combined with feeble-mindedness the two together are inherited as a simple Mendelian recessive. The evidence, however, seems very inadequate.

¹ D. F. Weeks, Inheritance of Epilepsy, International Eugenics Congress, 1912, Vol. I.

The first three cases are supposed to prove that the offspring of defective parents are all defective; but eight of the offspring of epileptic parents are only tainted, which in other cases means they are of the hybrid or simplex form. And in No. 3 insanity does not seem to be of the same nature as epilepsy or feeble-mindedness, for seven are normal and eight are simplex. But it should be noted here that the fact that defective parents produce only defective offspring, if true, would be no proof of Mendelian inheritance. The same thing would occur under the theory of blended inheritance. Case No. 4 may furnish evidence that alcoholism in a parent tends to produce feeble-minded or epileptic offspring; but it is of little value in the study of inheritance, for the mental character of the parent is not definitely known. He is assumed to be partially defective because he is alcoholic. This, to be sure, is a plausible assumption; but it is not sufficiently reliable to prove modes of inheritance. Cases under No. 5 are supposed to show the results of the crossings of recessives and hybrids and the results are not far from the expected of half and half. It should be noted that the combination produces both tainted and normal, whereas all should be tainted, —namely hybrid. No normals are expected. If this means that normals and hybrids cannot be distinguished, then it indicates again incomplete dominance; and the difficulties of classification are greatly increased. The same point arises in cases 6, 8, and 9, where the matings are with normal. In these cases none of the results are in accord with theoretical expectation. Whereupon the author shifts ground and decides that the normals are really simplex. Of course re-classifying the characters of the parents to make them harmonize with the characters of the offspring is assuming Mendel's law, not proving it. If the normals are all simplex, 5 and 6 should be combined, and 7, 8, and 9, are all cases of simplex by simplex. Even then the proportions do not approach very closely to the expected, especially in No. 9. In 7 and 8 no attempt is made to classify tainted and normal; but the proportion should be 1:2:1, and the figures in 9, — 78:25:172, — do not bear much resemblance to it. The fact probably is that some of the normals are simplex and some are duplex; and unless the numbers are

known the cases involving normals are of no value. And this uncertainty affects the classes of simplex individuals, for we do not know how many to add to that class from the normals.

It should be noted here that the second generation is not divided definitely into defectives and normals, as would be expected from a simple Mendelian unit factor. It is true rather that all grades of mentality and many varieties of neurotic conditions are produced. The fact again would suggest the same explanation as that mentioned in the discussion of feeble-mindedness, that several factors, rather than one single unit, are present. One reason, however, for the variability here is that two defects, epilepsy and feeble-mindedness, are involved in almost all of the cases. Davenport and Weeks in combining these defects seem to assume that both are due to the absence of the same determiner; but Holmes points out that this cannot be true, for, if the causes for the two defects were the same, they would tend to appear equally from feeble-minded and epileptic parents. But actually epilepsy is much more likely to appear when one or both parents are epileptic than when they are feeble-minded. The two defects seem to be closely associated because feeble-minded parents produce epileptic as well as feeble-minded offspring; but it seems certain that they represent separate factors in inheritance.

It must be admitted that the value of this table for determining mode of inheritance is greatly weakened by the discrepancy between the number of conceptions and the number of offspring classified, amounting to about 40% of the total offspring. This is due partly to lack of information but chiefly to the large amount of infant mortality. If all the offspring were included, the proportion of the defectives would probably be increased, on the theory that the inferior rather than the superior die in infancy.

Insanity. Insanity is much more difficult to study than either feeble-mindedness or epilepsy for two reasons. First, there are various kinds of insanity. Some kinds are inherited and others are produced by environmental causes, and the latter have to be separated before the true nature of the inheritance can be ascertained. Then, of the inherited types of insanity, there are

admittedly various forms; and, while it is possible that all these forms may be inherited in the same manner, it is quite conceivable that certain kinds may be inherited with much greater strength than others. The second difficulty is that insanity, even when inherited, does not show itself early in life. It is essentially a phenomenon of middle life, yet it may appear at almost any age, so that one never knows when the age of incidence is passed. Many members of the families studied may die before insanity would naturally show itself, and this fact makes any results unreliable.

David Heron made a study¹ of hospital cases of insanity in which all forms were included, no attempt being made either to classify according to types of insanity, or to separate inherited from non-inherited cases. His results, given below, show little resemblance to the expected Mendelian ratios, though they do show close resemblance to results obtained by Pearson in his study of tuberculosis, and these are included as of interest for purposes of comparison.

TABLE XXI

Matings	Expected to have Diathesis	Recorded to have Tuberculosis	Diathesis Insanity
1 Both sane D(R)xD(R)	25%	21%	21%
2 One Insane (RR)xD(R)	50	29	24
3 Both Insane (RR)x(RR)	100	57	50

For the sake of comparison Heron assumes that the normals may be simplex. If they are not simplex, and insanity is a recessive trait, all offspring of cases 1 and 2 should be normal. However, as some of the cases included are probably non-inherited, that fact might account for insanity in the offspring of normals. Probably also a number of cases of neurotics, treated by other authors as simplex, are counted as sane in this study, for the dividing line between sanity and insanity used here was hospital treatment for insanity. A better knowledge of the mental condition of relatives outside of asylums might

¹ Eugenics Laboratory Memoirs, No. II.

increase the number that should be classed as probable hybrids. On the whole this study does not give material sufficiently detailed really to test Mendel's law, but it does show a high degree of heredity in insanity. The coefficient of correlation between parents and offspring was .57 and the fraternal correlation was between .45 and .55.

In addition to Heron's investigation, Rosanoff and Orr made a study of 206 matings with 1,097 offspring, using Mendel's formula as a guide in their classification. They attempted to exclude all cases of insanity not inherited. The results are given below.

TABLE XXII
INHERITANCE OF INSANITY ¹

	Type of Mating	No. of Matings	Total No. Offspring	Died in Childhood	Unascertained	Neuropathic		Normal Offspring	
						Actual Findings	Theoretical Expectation	Actual Findings	Theoretical Expectation
a	RR × RR	17	75	11	0	54	64	10	0
b	D(R) × RR	37	216	46	1	84	84½	85	84½
b ₁	D(R) × RR	56	284	20	4	106	130	154	130
c	DD × RR	14	61	13	3	0	0	45	45
d	D(R) × D(R)	7	34	5	0	8	7¼	21	21¾
d ₁	D(R) × D(R)	55	335	39	3	99	73¼	194	219¾
e	DD × DR	20	92	12	3	0	0	77	77
f	DD × DD	0	0	0	0	0	0	0	0

The mental condition of the parents was not known in all cases and the authors frankly stated that they classified "b₁" and "d₁" according to the character of the offspring. As these divisions contain the largest number of cases the table, of course, is not very conclusive. The results as classified do not depart widely from the Mendelian expectation, but the ages of the individuals are not given. If many of them are still young the normals are likely to be over-estimated. One interesting

¹ Rosanoff and Orr, — A Study of Inheritance in Insanity, Eugenics Record Office, Bulletin No. 5.

result of the study was that while normal mentality is usually dominant over defective conditions, some kinds of neuropathic conditions are dominant over other kinds. This indicates, according to the authors, that normal mental conditions are dependent upon a group of determiners instead of a single determiner. In a later preliminary report of a study of ten families, Dr. Rosanoff finds evidence in at least four families that insanity is not entirely recessive but tends to appear with varying neuropathic symptoms. This conclusion would be in agreement with the results for feeble-mindedness and for epilepsy.

It is probable that conclusive data cannot be obtained for insanity until records have been kept for more than one generation. Mental conditions of parents of patients are not always obtainable unless these families have been under observation by experts. And it is not always possible to classify individuals as to insanity until late in life. In addition to these complications, it is coming to be recognized that data for the inheritance of insanity is very greatly complicated by racial poisons. It is possible that the difficulties of classification may prove to be too great ever to give very exact results for heredity; but the evidence now is that insanity is strongly heritable and that it does not appear to be uniformly recessive. The material for all forms of mental defectiveness leads to the same conclusion. If their inheritance is Mendelian at all, they represent cases of multiple factors or at least of imperfect dominance.

Supplements to the Theory of Heredity. *Multiple factors.* The cases of human heredity reviewed here are sufficient to show that human heredity is complicated and does not follow any simple formula. Several theories have been proposed to explain the situation. The Mendelists believe that their analysis furnishes the ground work for all forms of heredity, though allowance has to be made for many variations and combinations. And their position is supported by microscopical analysis of cell divisions and combinations of chromosomes. In other words the microscopical work is consistent with Mendelian suppositions and with experimental results, though it does not exclude other explanations.

In order to make Mendel's theory more generally applicable

it has been suggested¹ that so called unit characters are not stable and indivisible but are complexes, which under the right circumstances may hold together as a unit, but which under other conditions may split up and form new combinations. Many characters at first supposed to be simple units have been broken up by selected crossings, and therefore it is suggested that all characters are multiple. A possible explanation is that a character may become stabilized through long inbreeding and in that case act as a single Mendelian unit, as is frequently the case in plants. But when there is continual intercrossing, as with the human species, characters become less and less coherent and more easily yield new combinations of component factors, thus giving the complex results so often found in human inheritance. According to this theory there is no hard and fast line of distinction between continuous and discontinuous variations. It is a matter not of quality but of degree. At one extreme in the scale is the coherent unit character which follows the simple Mendelian formula, and from this extreme the factors involved may increase in number until they become so numerous as to form a blend.

This suggestion of complexity has much to commend it as an explanation of the behavior of hereditary characters. It has been proved already that certain characters are multiple, composed of three or four factors; and therefore it is reasonable to assume that others also are multiple, and may even be made up of many factors. It would be difficult to disprove the claim that blended inheritance is due to the combination of many factors. It has been shown that if six factors are present the original character will reappear only once in 4,096 cases. And in that case, if the character did reappear, it would be impossible to say whether it was a mere variation or whether it was the original character reappearing through segregation. In an extreme case of this kind, however, there seems to be no gain in trying to mold it to Mendel's formula. For practical purposes several multiple factors give a different form of inheritance. A draftsman is not enlightened by being informed

¹ See G. N. Collins, Nature of Mendelian Units, *Journal of Heredity*, 5: 425.

that a curved line is merely an infinite number of straight lines. And the practical breeder is not helped by the theory that a blend is merely the mosaic of a large number of factors which actually segregate. He will still assume that it is a blend, and he will find the Mendelian formula of no assistance.

Even if the general principle of multiple factors is finally accepted, it would seem unnecessary to assume all characters multiple. The indivisible unit in heredity must exist, and the facts could be explained as well by the simpler supposition that some characters are indivisible units and others are multiple characters of varying degrees of complexity.

Bonhote's theory of vigor. Another theory deserving consideration, because supported by many experiments, is that of Bonhote,¹ who turns to external influences to account for the variations from the expected in hereditary characters. His theory is, in brief, that inheritance in the individual is modified by the vigor of the parents, vigor being defined as "activity of nutrition and function," or a high state of metabolism. The initial vigor of the individual is determined by the vigor of the parents, but it may be influenced also by environmental factors, especially temperature, moisture, and food. Many of his tests were made on the color of animals, for color is the product of metabolism and is therefore well adapted to indicate changes in vigor. A strong shade of color represents high vigor. He finds that fluctuating individual variations are due to vigor and are inherited. But his most interesting conclusion for the problem before us is that dominance in one trait over another is merely the expression of the relative degree of vigor of the parents, which may sometimes be controlled. A positive or stronger trait is likely to be dominant over a negative or weaker trait. Variations in vigor of parents, according to this theory, may account for complete dominance, or even reversal of dominance, for Bonhote maintains that under favorable conditions parents showing the recessive character have reproduced the dominant character in some of their offspring.

Other investigators have arrived at the same conclusion as Bonhote with regard to the effect of environmental influence

¹ Vigor and Heredity.

on dominance, — for examples, Tower in his experiments on beetles, and Morgan in his studies of the vinegar fly. In fact Morgan would limit the law of segregation to the same environmental conditions.

Bonhote does not reject Mendel's law, although he believes it expresses only one form of inheritance, but he tries to supplement it by showing the causes for departures from expected results. Certainly the fact of imperfect dominance seems to have been sufficiently demonstrated for both mental and physical traits; but the cause is not so clear. It would be a very important addition to our knowledge of human heredity, if it could be shown that variations in dominance for human traits were caused by relative vigor of parents, or by any environmental influence, as it has been demonstrated they are in a few cases for the lower animals. And proof that such dominance is sometimes influenced by environmental conditions would support the contention that variations in dominance are not always due to multiple factors, although it might not necessarily mean that only one factor is involved.

Possibility of more than one form of heredity. Finally, in contrast to the attempt to stretch the Mendelian formula to cover all kinds of heredity, is the belief that there is more than one form of heredity. Blended inheritance may represent a different form of inheritance rather than a variation of the Mendelian kind.¹ The point of view of Jordan and Kellogg is that Mendelism probably applies only to certain particular categories of characters, or to the alternative form of inheritance. They mention blended and particulate as separate forms. And Bonhote concludes that the evidence is about equal for the support of Galton's law of blended inheritance and for Mendel's law. He believes that these points of view, seemingly antagonistic, may be brought into harmony; and he has presented a theory of their adjustment.

The evidence of the biometricians is of interest in this connection. Pearson estimated that the conditions of Mendelian inheritance would yield a coefficient of correlation of about one-

¹ See S. Hatai, The Mendelian Ratio and Blended Inheritance, *Am. Nat.* 45: 99.

third, and, although the correlations for some traits have been as low as this, the majority are near one-half. He concluded therefore that Mendelian inheritance of human traits was the exception rather than the rule. Yule, however, in a criticism of Pearson's paper, which turned out rather to be a supplement of it, showed that Pearson's supposition was confined to the simple form of Mendelian inheritance with complete dominance. In such cases Yule agreed that the coefficient of correlation would be one-third. But if multiple factors sufficient to give a blend of the original characters be assumed, the coefficient of correlation would vary between one-third and one-half at random mating, and would rise above one-half with assortative mating. Yule, therefore, concluded that the results of the biometricians might be in harmony with the refined interpretation of Mendelism. Indeed Yule's estimates seem to be in entire harmony with the results of intensive study of human heredity. Simple Mendelian inheritance with pure dominance seems to be the exception instead of the rule. The majority of human traits studied appear to show either lack of dominance or multiple factors; and the coefficient of correlation falling around one-half would confirm this situation. Here is a case in which the coefficient of correlation might yield a suggestion as to the modes of inheritance. If the correlation were low it would suggest simple Mendelian inheritance; if high it would indicate multiple factors. But again it may be repeated that the coefficient of correlation does not pretend to throw light on the mode of inheritance.

Conclusion. Our present limited knowledge of the inheritance of human characters, and the disagreement of scientists over the mode of inheritance of many of these traits, should not preclude tentative conclusions on this important subject. Even to the practical sociologist the mode of the inheritance of human traits is of importance, but it is not so vital as the fact of inheritance. This fact of the inheritance of both physical and mental traits is well established; and most characters seem to be inherited in approximately the same degree, though it is undeniable that certain traits are more easily influenced by environment than are others.

While Mendel's law may furnish the basis, or perhaps a point

of departure, for interpreting human heredity, the simple Mendelian formula is evidently not comprehensive enough to explain the facts. The sociologist would be led into error if he assumed that such characters as mental defects were simple Mendelian recessives. These defects actually appear in degenerate families much more frequently than would be the case if they were completely recessive.

The conclusion of practical import concerning the inheritance of mental traits is that it is unwise for mental defectives to marry. It has been suggested by Mendelists that, so far as the second generation is concerned, it would be safe for defectives to marry normals, because their offspring, though capable of transmitting the defect, would themselves be normal. But the number of cases in which mental defectives have appeared in the offspring of such matings would contradict this supposition. Either mental defectiveness is not so completely recessive as was supposed; or else such a large proportion of the population are simplex for mental defectiveness that normality is never certain. According to either supposition the reappearance of the defect, in some form, in the children would be probable. If it did not appear in the immediate offspring it would almost certainly reappear in a later generation.

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CHAPTER XXIII

2 HEREDITY AND ENVIRONMENT

Two Problems of Environment. As heredity treats of all the inborn traits which form the raw material of the individual, so the environment includes all the external forces which may influence this raw material. The environmental factor gives rise to two distinct problems: first, that of its possible power to influence heredity by modifying the inborn characters themselves; and, second, that of its relative importance in determining the development of the individual after birth. Both of these problems involve an inquiry into the extent of the environmental influence and also into the method of its action.

Problem of the Inheritance of Acquired Characters. The first problem, ordinarily known as that of the inheritance of acquired characters, is the point of contention between two distinct schools of evolutionary theory. The first school, known as the Lamarckian, maintains that the environment directs the course of evolution by modifying the characteristics of the individual in the process of adaptation, and that these individual modifications are transmitted to future generations by inheritance. The other school, influenced chiefly by the work of Weismann, maintains that the environment can influence the direction of evolution only in determining which individuals shall survive, and not at all through any direct action upon surviving individuals; and that environmental modifications of the individual never become a part of the equipment of the species, because they are not inherited. In support of his theory Weismann contended that the germ plasm was not derived immediately from the somatic, or body cells, but came directly from the germ cells of the parents, so that the germ plasm was continuous from generation to generation and was therefore unaffected by somatic changes. This theory, supported by convincing

experiments, and further confirmed by enlightening researches into the mechanism of inheritance, won over the majority of biologists. The Weismann school insists that no evidence exists of the inheritance of acquired characters, and claims moreover that the assumption that they are inherited is not essential to complete the theory of evolution, as all the facts can be accounted for by processes which are well established. Within recent years, however, new experiments have added weight to the Lamarckian viewpoint, and on the whole biologists are inclined to admit that the question is still open, and they acknowledge that many facts could be more easily explained by the hypothesis of the inheritance of acquired characters than by any other theory.

In the course of experiment and discussion the two schools have come nearer together and are fairly well agreed on certain points, as for instance the non-inheritance of mutilations. Ever since Weismann cut off the tails of twenty-two generations of mice, and failed to get a tailless species for his pains, it has been generally agreed that mutilations are not inherited. And it is fortunate that they are not, for if they were the human race would present a melancholy appearance by this time. The Lamarckians themselves agree that this is not the sort of influence which would impress itself upon the germ plasm.

Quite a different problem concerns the effect of the use or disuse of parts, for it is conceivable that, though a mutilation imposed from without might have no effect on future generations, a change in the organism due to individual effort might have an influence. However, biologists generally agree that there is no evidence of the inheritance of the effects of the use or disuse of parts, such as muscles; though there are scientists who prefer to interpret the existence of vestigial organs as inherited results of disuse, and who explain the blindness of cave animals also as resulting from the disuse of the organs of sight. The last case, on the other hand, is explained by their opponents as a result of the discontinuance of selection, or perhaps rather the reversal of selection. Animals with defective eyesight probably had a positive advantage in dark places over animals which relied upon sight, and therefore survived; while animals with

normal vision either perished or found their way to the light.

The question of the inheritance of the use or disuse of parts is admittedly difficult of solution, for its most ardent advocates now admit that any immediate heritable effect would be only slight, though it could be cumulative generation after generation. In the case of organs dependent upon individual exercise for development, it would be almost impossible to prove that exercise by the parent had any effect upon the offspring. As has already been suggested, inheritance of the use or disuse of parts is usually denied on negative grounds; that is, because of the general lack of any evidence to indicate inherited effects of somatic changes. The question will probably have to be settled by experiments of a different nature. If it should ever be positively proved that acquired characters of any kind were inherited, there would be more willingness to admit that the use and disuse of parts gradually affected future generations. The most notable experiments tending to prove the inheritance of acquired characters have been those of Kammerer, who has made extended investigations over a period of several years. According to reports, he altered the breeding habits of toads by changing temperature and found that these habits were inherited as a Mendelian dominant character; and he also altered the color of salamanders by changing the backgrounds and found the new color inherited; and he made experiments on flounders, showing the effect of light on color and its tendency to become fixed. Another experimenter, Mr. W. F. Guyer, obtained young rabbits with defective eyesight by injecting a serum into the mother, and found that the defect was transmitted to as many as eight generations with a tendency to an increase rather than a diminution in the effect. When crossed with normal rabbits the defect seemed to behave as a Mendelian recessive. While these experiments have not been generally accepted as proving the case, they have aroused much interest. Bateman and Huxley particularly are skeptical of Kammerer's results; but McBride believes that the inheritance of acquired characters has now been demonstrated and explains his position as follows:¹

"The exercise of function tends to enlarge the organs and if con-

¹ *Eugenics Review*, 8: 329.

tinued through generations slowly modifies the structure of the stock till eventually the resulting change can show itself in the young before the exercise has been begun. Conversely persistent disuse of function tends to atrophy the organ till eventually it is developed only in a reduced form."

The problem of the effect of the use and disuse of parts has appeared also among the psychologists, who have argued concerning the probable effects of nerve reactions on offspring. Thorndike believes that the strengthening of a nerve response in an individual would be unlikely to modify the germ cells to produce stronger response in the children. But H. W. Chase argues,¹ from what is known of changes in secretions through the exercise of the emotions, that there would be good reason to assume an effect on offspring, provided the reflexes were attended by intense integration of the organism. And Castle admits that the inheritance of instinct is very difficult to explain unless the inheritance of acquired characters is admitted.

The doctrine of the inheritance of acquired characters has been objected to on the ground that we know of no mechanism by which it could be accomplished, — an objection which would seem to indicate a good deal of scientific complacency. The advocates of the theory have suggested that the stimulation of secretions, or chemical changes in the blood, might furnish the mechanism. It is incontestable that the germ plasm represents ancestry rather than the immediate individual. And it is certainly difficult to see how changes in the individual could affect the inheritance by acting on the germ cells; but it is also difficult to understand how complex nervous reactions could develop by chance variations if the experience of the individual had no effect on the offspring.

Experiments already made will doubtless have to be verified and extended before much reliance can be placed upon them. And even if the principle in question were established, it is possible that its usefulness might lie chiefly in helping to explain obscure processes of evolution rather than in any practical effects to be derived from its use. The Lamarckian theory has already been partially accepted, for it is generally admitted that

¹ American Journal of Psychology, 28: 175.

the environment may affect simultaneously the somatic cells and the germ cells, though it is not generally admitted that the germ cells are affected through the body cells. The environment then may have a direct influence in shaping the course of evolution despite the fact that modifications may not be inherited.

Even though the inheritance of acquired characters were further corroborated, the sociologist should apply the theory with great caution, because the effects of inheritance would evidently be so exceptional and so slight as to be practically negligible in a single generation. It would be safer for the sociologist to assume that the effects of the life and habits of the parents, whether for good or ill, were not, technically speaking, inherited.

True Meaning of Heredity. The general conclusion concerning the non-inheritance of acquired characters may be accepted, however, only with a clear understanding of two points: first, the true meaning of heredity, and, second, the ways in which the germ cells may be affected by external influences. Inheritance means that the chromosomes in the germ cells of the offspring so resemble those of the ancestor that the offspring reproduces the same trait. In this sense therefore a disease could not be inherited. Most disease germs are larger than the sperm cells, and it is entirely inconsistent with the known mechanism of heredity that germ diseases should be hereditarily transmitted. Even though the ovum, which is larger than the sperm, could be attacked by a disease germ it would still be a case of infection and not a variation in the carriers of inheritance. However, defective organs may be transmitted by inheritance just the same as perfect organs are, and they may cause disease. A few germ diseases like syphilis, though not inherited, may be congenital; that is, infection takes place during the period of prenatal development. Such a distinction between inherited and congenital characters may of course be of no practical importance to the victim himself, but it is of great importance to the theory. Other diseases which appear late in life, like tuberculosis, are not in themselves either inherited or congenital; but it is supposed that power of resistance to disease germs is inherited in varying degrees. Whenever a disease germ is so prevalent that

everyone is exposed to it, native power of resistance becomes all important.

Direct Effect of Environment on the Germ Cells. Next it should be thoroughly understood that even though the life and habits of the parent do not influence the heritage, these may affect the germ cells directly for good or ill. No one believes that the germ cells are so completely separated from the body cells as to be uninfluenced by them. The germ cells are a part of the organism and their health and vigor are likely to vary with the general health of the organism. Thus poor nutrition may starve the germ cells, and cause them to produce small or weak offspring, but the hereditary constitution remains unchanged. Furthermore, certain poisons like lead or alcohol, at least in large quantities, may affect the germ cells to the detriment of the offspring. The effect may show itself in various ways, and not necessarily in the same way as in the parent. Such a condition is not inheritance, but injury. On the other hand, although injury to the germ cells through the blood is possible, the danger of their permanent deterioration from poor nutrition or from alcoholic poisoning may be easily over-estimated; yet probably the effect of poisons from the social diseases has been underestimated. There is good reason to believe that the germ cells offer strong resistance to moderate deterioration of the body. Pearson made a study of children of temperate and of intemperate parents and found that on the average children of intemperate parents showed no inferiority physically or mentally to those of temperate parents. From the criticisms aroused over this finding, one gathers that his opponents are greatly chagrined to find that the offspring of intemperate parents are not doomed at the start. But nature is not so resentful. In the case of the human species, which has made use of intoxicants from the earliest times, children of intemperate parents may show no signs of degeneracy if they are brought up in a good environment; although, if a parent is a persistent drunkard, the children are likely to inherit such undesirable traits as poor self control, nervous instability, or a degree of feeble-mindedness which was probably the basis of the delinquency in the parent.

Experiments have been carried on to ascertain the effects of alcoholic poisoning upon the lower animals; and, while it is generally agreed that the animals treated degenerated, this result has been interpreted in different ways by different investigators. It is not certain that effects obtained from experiments on animals can be applied to the human species without verification by experiments upon them. The doses of alcohol usually given to animals in these experiments have been so large that the results could have no bearing on the question of moderate drinking. And the human race has made use of intoxicating liquors for such a long period of time that it is only reasonable to suppose that it has become to some extent adapted to the poison. Dr. Jon Alfred Mjöen,¹ after reviewing the evidence on this subject, concluded that alcoholic poisoning injured both individuals and the race, the injury varying with the strength of the alcohol; but he found no proof that alcohol influenced the offspring when the parent came from sound, healthy stock, although, when he came from tainted stock, Dr. Mjöen believed that use of alcohol prevented any recovery of normality in offspring.

Before leaving the subject of the effects of the environment on the germ cells, it will be worth while to recall the theory given in the previous chapter that external conditions may determine which character of an allelomorph will be dominant. Of course this kind of influence would not be the same thing as the inheritance of an acquired character, but it would be an example of the influence of the environment upon the hereditary process and therefore upon the direction of evolution.

The conclusion to be drawn from the evidence is that, even though acquired traits are not inherited as such, normal and healthy conditions of life for parents are of great importance for the welfare of the offspring from birth. But on the other hand no amount of improvement in the conditions of life of the parents can improve the stock; the heritage will remain the same. The healthy life of the parents will merely insure a normal beginning for offspring already endowed with traits determined by ancestry.

¹ Effects of Alcoholism on the Germ Plasm. First International Eugenics Congress, Vol. II.

Problem of the Influence of the Environment Gives Rise to Two Schools of Reform. The second problem of the environment, that of its relative strength and the nature of its influence, is, like the first, a complicated and an unsolved one. As the problem of the inheritance of acquired characters has caused two theories of evolution, so the problem of the relative importance of the environment has given rise to two schools of social reform.

The geneticists believe that inherited characters are of chief importance in determining the nature of the individual, and that the environment, while it is of course a necessary factor in development, will not of itself cause such a wide variation in individuals as that resulting from differences in hereditary traits. Therefore they hold that the art of eugenics, which looks to the improvement of the inherited traits of mankind, is of primary importance to social progress.

The environmentalists on the other hand, while they admit differences in original endowment when extremes like geniuses or the subnormal are considered, believe that the vast majority of mankind are not greatly dissimilar in heritage; and that the differences which do arise are caused by environmental influences, such as early care, education, and opportunity. Accordingly they lay stress on euthenics, the art of perfecting the environment, as the factor of supreme importance for social well being.

True Meaning of the Problem. These two points of view present two sides of an intricate problem. The interrelation of heredity and environment is evident. Inherited traits correspond to the seed; they are latent possibilities. Environment does the work of the soil, the rain, and the sun; it develops the innate characters. The environment cannot develop traits which are not present in the germ cells; but, on the other hand, inherited traits may be suppressed or stunted if the environment is unfavorable. When both nature and nurture, as they have been called, are so evidently indispensable, it may seem unreasonable to speak of their relative importance. Nevertheless a comparison between them is feasible; and it is also eminently worth while, because the question is one of vital importance to

the social worker. The point at issue must first however be made quite clear, for the widespread discussion on this subject has frequently been confused and even irrelevant. Just what is meant then by trying to ascertain the relative importance of two essentials, heredity and environment? First, the problem might narrow itself down to the question of the determination of a particular trait in the individual, such as stature, eyesight, or intelligence; in fact this may finally appear to be the only reasonable way to approach the problem. The answer to this phase of the problem will of course vary according to the character in question. Evidently traits like eye-color are entirely a matter of inheritance, while other physical conditions like diseases, and social acquisitions like good manners, are almost wholly the product of the environment. A system of accurate measurement for all kinds of characters may in time be devised, and the individual then can be pictured as a composite of many traits, some of which are chiefly determined by heredity and others by environment.

Ordinarily, however, this problem has a somewhat different significance to the inquirer. He usually wants to know whether the individual as a whole, and especially whether his mental equipment, is dependent chiefly upon hereditary or upon environmental influences. This general problem may be approached in two ways. One may ask to what degree the adult individual owes his limitations and his achievements to heredity, and to what degree he owes them to environment. Or, stating it the other way around, one may ask if the range of variation produced by the environment is greater or less than the range of variation arising out of inheritance. If, for instance, a number of individuals, sufficiently large to represent all existing differences in natural endowment, were reared in the same environment, would the resulting divergences be greater or less than would be the case, if an equal number of individuals of like inheritance were reared under the varying environmental conditions which actually exist? Although the problem here stated is admittedly complicated and perhaps not capable of exact solution, still investigations have been made which throw some light on the subject.

Galton's Early Studies. Francis Galton¹ conceived the idea that valuable evidence concerning the influence of the environment might be obtained from the study of twins. Twins are of two kinds: identical, or those developed from the same ovum, and ordinary twins, the product of different ova. The former are always of the same sex, and were then supposed to have practically identical inherited traits, though it appears now that they may be similar in some characteristics and quite different in others. Ordinary twins are frequently of opposite sex, and are no more alike than ordinary brothers and sisters. Galton's idea was that if inheritance were of little comparative importance, identical twins would become less and less alike, especially those who had separated early in life and had lived under different conditions, while ordinary twins living under the same conditions would become more alike. Galton studied 35 cases of twins showing remarkable similarity of physical characters, in some cases even in minute details such as form of finger joints and predisposition to have the same ailments; and in at least 16 cases it was ascertained that tastes and dispositions were alike. Although his results were not the same for every case, there was much positive evidence that original similarities continued late in life even under diverse living conditions. Most of the cases of late dissimilarity were attributed by relatives to sickness or accident.

Galton also studied 20 pairs of twins of very dissimilar original traits. In some cases the differences were so marked that the individuals were described as complementary instead of similar. In these cases it was found that the dissimilarities continued, even though the twins lived and were educated under practically identical circumstances.

Modern Psychological Tests. Inasmuch as Galton's method of obtaining data was that of questions through correspondence, his evidence suffered, no doubt, from the defects of the personal equation. Thorndike tried to avoid inaccuracies by measuring twins according to the modern method of mental tests. He measured 50 pairs of twins of different ages on the theory that if the environment were a strong force twins would grow in-

¹ See *Inquiries into the Human Faculty*.

creasingly alike, at least up to the time of leaving home. His general conclusions were,¹ first, that older twins did not show greater similarity than younger twins; and, second, that brothers and sisters only a few years apart and therefore living under similar environmental conditions showed a much smaller degree of similarity than twins, the resemblance being less than half that of twins.

Professor Starch² made an interesting experiment to ascertain the extent to which ability is the result of training. He tested 18 pairs of brothers and sisters in the University of Wisconsin for two groups of characters, those which would be affected and those which would be unaffected by school training. He found that the correlations for the former group were not appreciably larger than those for the latter group; the average of the former being .42 and of the latter .38. If these similarities had been due to training rather than to original ability, then the tests for the first group of characters would have shown a much greater degree of similarity than those of the second group.

Another experiment by Thorndike is significant as showing the effect of similar training on different individuals. Two groups of adults were tested for initial ability in one character, that of proficiency in addition. They were then put under the same course of training; and, at the end of the period, the tests showed that the two groups were farther apart than they were in the beginning. In other words the superior group had profited more by the training than had the inferior group.³ Thorndike's opinion is very positive. He says:⁴ "Of the score or more of important studies of the causes of individual differences which have been made since Francis Galton led the way, I do not find one that lends any support to the doctrine of human initial equality, total or approximate. On the contrary, every-one of them gives evidence that if the thousand babies born this week in New York City were given equal opportunity they would

¹ Educational Psychology, p. 81.

² Educational Psychology, p. 81.

³ Eugenics: Twelve University Lectures, p. 323.

⁴ *Ibid*, p. 322.

still differ in much the same way and to much the same extent as they will in fact differ."

Starch has confirmed this last experiment of Thorndike's on the effect of training.¹ He tested eight persons before and after practice in multiplication, and found at the end of the period of training that the superior individuals had made more progress from the training than had the inferior individuals.

Contributions of Statisticians. The statisticians have attempted to solve the problem of the relative importance of nature and nurture by comparisons between masses of individuals. Several thousands of school children have been measured and tested for various physical and mental characters, and the results compared, first, with the same traits in parents, or in brothers and sisters, to ascertain the strength of the factor of inheritance; and second, with various conditions of the environment, to ascertain the probable influence of the environmental factor. Although this method contains possibilities of error and is subject to abuse, nevertheless, if the material is gathered with care by experts, and if statistical fallacies are avoided, it should yield significant results. It had previously been ascertained that the correlation between parent and offspring for measurable physical traits was about .5, 0 representing no relationship and 1 perfect identity. One of the first studies undertaken was on defective vision.² And the results gave the strength of inheritance for eyesight as .49, practically the same as for the other physical characters. To ascertain the influence of the environment, four different categories were studied, "number of people to a room," "good economic conditions," "good physical condition of parents," and "good moral condition of parents." In none of these categories was any perceptible environmental effect found either for boys or for girls. In fact the coefficients were more frequently negative than positive. Nor was it found that school environment was detrimental to eyesight.

The conclusion to be drawn from this study of defective vision is of course limited. It is merely that defective vision

¹ Educational Psychology, p. 88.

² Amy Barrington and Karl Pearson, A First Study of the Inheritance of Vision. Eugenics Laboratory Memoirs, V.

is a product of inheritance rather than of environmental conditions. It does not prove that characters less specifically physical may not be determined by environment. However, this original investigation has more recently been supplemented by other studies, and the number of correlations between individual characters and environmental conditions has been greatly extended. Investigations concerning intelligence of children showed small positive correlations with good economic conditions; that for boys being .10 and that for girls .16. Condition of glands, keenness of hearing, and diseases of the ear usually showed slight correlations with the various categories representing environmental conditions, though some of the results were negative. The results of a large number of studies of this sort were combined, and it was found that the average of the "nature" influence was .51 and that of "nurture" was .03.

A later study¹ on the health and the mortality of infants is of special interest because environmental conditions were investigated in greater detail; and the attempt was made to ascertain the kind of environmental conditions which were most influential. For this purpose they were separated into three groups.

1. Physical factors, including dampness of house, lighting of house, overcrowding, ventilation, type of house, number of rooms, nature of sanitation, and rent.

2. Indirect parental environment, including father's occupation, regularity of work, wage of father, employment of mother, income of family, insufficiency of food.

3. Direct parental factors, including habits of father, habits of mother, cleanliness of home, use of ventilation.

A difficulty in these comparisons was early encountered when it was found that parents who were inferior physically and mentally tended to drift to the poorest tenements; therefore a correction had to be made, in so far as it was possible, to separate the influences of the physical conditions themselves from the inherited character of the parents. After corrections were made, the correlations of health of infants and of mor-

¹ E. M. Elderton, *Relative Strength of Nature and Nurture*.

tality of infants with "physical environment" and with "indirect parental environment" were almost negligible, the coefficients for mortality being even smaller than those for health. Even the uncorrected coefficients for infant mortality were very low, only about .10, though the uncorrected correlations between "health" and "physical factors" in some cases rose to .3 or more. It was only in the third division of the environment, the "direct parental factors" that the corrected correlations were high enough to be significant. Here the average for all the factors was .154, and in one district the correlation between health of infants and cleanliness of the house rose to .33. These results give much less weight to the effect of mere physical conditions of houses than might be anticipated, but the greater importance ascribed to "direct parental factors" is not surprising. It was to be expected that better results would be attained for children in an inferior house with intelligent parents than in a better house with parents so ignorant or careless that they failed to take advantage of the superior conditions. The conclusion which Pearson draws from the statistical data is that "it is five or ten times as profitable for a child to be born of parents of sound physique and of brisk orderly mentality, as for a child to be born and nurtured in a good physical environment." In so far as the environment is an influence the most efficacious reforms apparently would lie in the direction of educating parents in matters of ventilation, food, and cleanliness. Moreover, it is probable that "habits of parents" as used in this study are themselves partly the result of inheritance, so that complete separation of the two factors would be impossible.

This method of statistical comparison has been criticised on the ground that, obtaining as it does the full force of the hereditary factor, it compares it with one factor only in the environment instead of with the total influence of the environment. It is probably true that total influence of the environment should be used in a comparison between environmental and hereditary influences on a character. But the total influence of several factors is not obtained, as Pearson points out, by adding the coefficients of correlation of each factor. The combined in-

fluence is rather the resultant, so to speak, of all the factors; and such a combination would raise the measure of their influence to a small extent only, as Pearson has shown. A more pertinent criticism would be that the really decisive factor in the environment had not been properly selected or properly measured. For example, if one is trying to ascertain the relative importance of heredity and of environment on growth, he can compare the same character in parents and offspring to ascertain the hereditary influence; but there is no such character as stature in the environment, nor is there any influence which obviously determines growth. The investigator might obtain negative results for several possible influences and overlook, or be unable to measure, the most potent influence of all. Such a danger will be overcome with more extended and more careful investigations; and even now the criticism has little point if applied to recent detailed data compiled by the Eugenics Laboratory.

Arguments Emphasizing the Importance of the Environment. The large mass of material supporting the contention that the environment is paramount consists for the most part merely of reiterated assertions concerning its significance; and when the material does include statistical evidence it makes no attempt to separate the influence of the environment from that of heredity, and hence the studies can usually be interpreted in favor of either factor. Inasmuch as inferior parents tend to segregate in the worst environments, it is of little significance to show that inferior children come from bad environments. The relative contributions of heredity and of environment to their inferiority still remains a matter of doubt.

Biologists have made a considerable number of experiments, chiefly on the lower scale of animal life, showing the abnormalities which may be produced by violent changes in the environment or by unnatural environments.¹ But, while there is undoubtedly a lesson in these experiments, they hardly cover the problem of the sociologist, for he is interested in the effects of the differences in the actual environments in which men live.

¹ See J. Arthur Thomson, *The Biological Theory of Nurture*. *Eugenics Review*, 8: 50.

And while some of these environments are objectionable they are probably much less abnormal than those artificially created for biological experiments. At any rate the degree of influence of inferior human environments would still need to be demonstrated.

One of the most serious attempts to prove the importance of the environment was made by Lester F. Ward,¹ who based his conclusions primarily on the material compiled by Odin in his study of the origin of great men, though the researches of Jacobi, De Candolle, and others, were also drawn upon. Ward does not deny inherited differences in men nor the importance of talent, for he admits that without talent men cannot rise to high eminence; but he maintains that the proportionate amount of native ability is approximately the same for all classes, and, for that matter, for all districts and races. The upper classes develop more genius simply because of their superior opportunities. Therefore, inasmuch as genius is a fixed quantity which cannot be affected by artificial devices, and inasmuch as the environment is variable, it is the duty of society to concentrate upon the improvement of the environment, and thus develop latent talent by giving all persons of native ability the best possible opportunity. If this theory is correct, then approximately equal weight should be ascribed to heredity and to environment, for, while talent is a prerequisite necessary for eminence, an unfavorable environment is strong enough to repress talent. In contrast to Ward's theory, Galton believed that a man who possessed great intellectual ability could not be suppressed. If Galton's idea is correct, then environment is not sufficiently strong to suppress talent and should be given less weight in the production of ability.

The validity of Ward's theory depends upon the existence of a proportion of ability in the lower classes similar to that in the higher, a proposition which perhaps can neither be proved nor disproved. The basis for some of his inferences may, however, be examined. Ward first emphasizes the fact that the proletariat class is gradually working upwards from a long period of slavery; that, moreover, this class never fell to its

¹ Applied Sociology.

lowly position because of innate inferiority but through conquest; therefore there is no reason to infer its inferiority now just because of its present position. Discussion would probably be profitless on the question of whether, on the average, the conquered were the equals in ability and energy of the conquerors. The period of conquest is too far distant to extend its influence over the present epoch. More pertinent would be a consideration of the probable effect of social selection under a class system. Since the abolition of slavery it has been possible certainly for individuals of superior ability in the lowest class to work up to higher social levels; and this movement, difficult at first, has grown easier as classes have grown more mobile with the spread of democracy. The result is that the lowest class has tended to lose its talent to the middle class, and no subordinate class exists from which to recruit more. On the other hand inferior persons of the middle class have in the long run tended to sift down to the lowest class, and this class retains also its own inferiors. As a result of this double movement the proletariat would contain a smaller proportion of the talented, and a much larger proportion of inferiors than the upper classes.

In support of Ward's line of argument, however, would be the general agreement that the present stratification of classes is no accurate reflection of differences in ability, and that the proletarian class deserves more training than it receives.

A second argument brought out by Ward from Odin's study contains a fallacy similar to that in the first argument, that is, that native ability is approximately the same in all districts. He shows that centers of population produce a much larger number of persons who achieve a high reputation than do outlying districts. And he argues that, inasmuch as centers of population are also centers of education and culture, the ability produced is the result of superior opportunity. This reasoning, however, ignores the facts of migration. Centers of culture have long been attracting the more able intellects from outlying districts; and their offspring, with their heritage of intellectual ability, increase the proportionate numbers of the highly endowed in the centers of culture. In the United States it is a

well-recognized fact among rural sociologists that seemingly degenerate conditions in rural districts are often the result of a draining of a locality of young people of ability and power of leadership. It would be absurd therefore to suppose that the same proportion of ability still remains in these outlying districts awaiting development as is to be found in cities which act as points of attraction.

Finally Ward points out that a considerable number of men of genius have risen from the lower social levels and therefore talent must exist on those levels. This fact is incontestable; but, instead of accepting it as a proof that talent exists in all classes and races in similar proportions, it would be quite as logical to conclude that if other geniuses existed in any large number in the lower ranks they also would make themselves known. The logic of the situation would seem to be that, inasmuch as geniuses sometimes rise from the lower ranks, then adverse environment is not strong enough to keep them down. In fact, it is reasonable to suppose that in democratic countries environmental conditions are not so bad that superior ability is in any large degree suppressed. If an able man among the wage earners could not find opportunity for complete development himself, it seems probable that he could at least improve his position sufficiently to give his children means of training. In this way even if individual talent were partly lost, a line of talent would not be wholly suppressed.

Achille Loria¹ is another able sociologist who emphatically asserts that economic classes afford no measure of social worth. He confines his arguments chiefly to the possessors of large fortunes and maintains that the wealthy have not attained their superior status through the exercise of exceptional talent, but rather through chance, or special privilege, or by the use of corrupt and fraudulent practices. Loria maintains, furthermore, that the children of the wealthy show no evidence of having inherited superior ability; and that this fact confirms the original contention that their fathers did not possess it. The reader is forced to agree in a measure with Loria's argument concerning

¹ The Psycho-physical Élite and the Economic Élite. International Eugenics Congress, I.

the origin of great fortunes. In fact one would find himself in a very difficult position if he tried to prove any precise correspondence between possession, or income, and ability. Nevertheless one feels that Loria has been unduly impressed with exceptional cases and without sufficient reason has applied the conditions of the very wealthy to all social gradations. Even if his contention concerning the very rich were true, he is still a long way from proving that the lowest class contains as much native ability as the class above it.

A significant study on this subject was made recently by Alfredo Niceforo,¹ who measured various physical, psychological, and demographic characteristics of representatives of the upper and lower social classes. His comparisons showed that the inferior classes had a lesser development of figure and of cranial circumference and had inferior sensibility and lower resistance to mental fatigue; that their rate of growth was slower and that they possessed a larger number of anomalies; that their birth and death rates were higher and that certain causes of death were particularly frequent; that they contracted marriage at an earlier age, and showed a predilection for certain forms of crime. Although the average of the characters studied indicated a general inferiority of the lower classes, Niceforo, by comparing the curves of sensibility for the two classes, discovered a certain number of persons of higher sensibility among the poorer classes and a certain number of inferior sensibility among the wealthy classes. Or, as the author says in his concluding words: "one can therefore demonstrate the existence of a little group of 'superiors' in the inferior classes and a little group of 'inferiors' in the superior classes."

This study seems to me to indicate accurately the relative values of classes, though it does not show the causes for existing differences. Niceforo attributes them to both heredity and environment; but the fact that superiors were found in the lower class environment would suggest that the differences were largely inborn. The number of the superiors is sufficient, either through chance variation or through favorable combinations of traits, to

¹ The Cause of the Inferiority of Physical and Mental Characters in the Lower Classes. International Eugenics Congress, I: 189.

call attention to the fundamental similarity of all classes. But, as these superiors are the members that work up from the lower into the higher classes, the lower social strata come to resemble the towns or districts which have been deprived of their best elements through migration.

Conclusion. The conclusion I would draw from the material on this subject is that the evidence fails to prove that talent is to any large extent suppressed ~~in~~ ^{by} adverse environmental conditions, though ability is ~~not~~ ^{not} developed to its utmost in any class in society. ~~The~~ ^{The} negative method of treating the problem fails to demonstrate that the environment is more important than heredity; while ~~the~~ ^{the} positive method on the contrary, through careful measurements of individuals and statistical estimates of conditions for large numbers, tends to show that inherited traits are more ~~important~~ ^{important} than existing environmental influences in determining ~~character~~ ^{character} and achievement.

While agreeing that the kind of tests that have been made attribute relatively greater importance to nature than to nurture, it must be admitted nevertheless that most of the studies have been confined to groups from the ~~same~~ ^{same} general class in society and therefore show no marked differences either in individual traits or in environmental conditions. We can only surmise what would be the result, if reliable methods could be devised to measure extremes of ability and also the influence of extremes of environmental conditions as represented by social classes; but the probability is that previous conclusions would not be materially altered. Superior environments provide social amenities which sometimes pass for the external marks of worth, but the form of ability which results in true achievement probably has an inherited basis in whatever class it appears. However, considering the limitations of the studies made, it may be safer to use Galton's statement to summarize the results. He says: ¹ "There is no escape from the conclusion that nature prevails enormously over nurture when the differences of nurture do not exceed what is commonly to be found among persons of the same rank in society and in the same country."

¹ *Inquiries into the Human Faculty*, p. 172.

And, although a quantitative statement of the relative importance of the two factors implies a more accurate solution of the problem than has been actually obtained, it is nevertheless worth repeating in the summary that measurements made showed that the resemblance of individual characters in offspring to those of parents was from 5 to 10 times as great as conformity between individual characters and environmental conditions. Starch states it a little more conservatively when he says that ¹ "the ultimate achievement of any given individual is due to his original ability, probably to the extent of 60 to 90% and to actual difference in opportunity or external circumstances only to the extent of 10 to 40%.

The True Nature of Environmental Influence. Further analysis is needed here of the action of the environmental factors, lest their influence seem to be underrated. Although investigations show that nature is more important than nurture in determining existing differences in men, in favor of nurture it should be said that it furnishes the stimulus for absolute achievement and it determines also the direction of development. Thorndike has summarized the methods whereby environment acts upon intellect and morals as follows: ²

1. Furnishing or withholding the physiological conditions for the brain's growth and health.
2. Furnishing or withholding adequate stimuli to arouse the action of which the brain is by original nature or previous action capable.
3. Reënforcing some and eliminating others of these activities in consequence of the general law of selection in mental life.

The first result is of special importance during the early years of growth. F. W. Mott ³ has laid particular emphasis on the health of the mother, the proper nourishment of the child, and sufficient sleep, as factors essential for the full development of mental as well as physical energy. Low powers of attention and quick fatigue may result from bad nurture.

The second set of forces may act at any or all periods of life,

¹ Educational Psychology, p. 94.

² Educational Psychology, Briefer Course, p. 394.

³ Nature and Nurture in Mental Development.

and they are of great importance in stimulating men to their highest capacities. Few people develop latent abilities to the fullest extent possible; and for the great majority of men environmental improvements providing effective stimuli will yield the richest results. The reason why so many persons drift through life on low tension is because they have not been gripped by an absorbing interest. Their dormant abilities have never been roused by the right environmental stimuli. One method of salvaging this wasted force is through improvement in the educational system. If schools could ascertain the individual capacities of pupils and bring to bear the right stimuli to develop those capacities, and if they could arouse permanent interests in the young which would direct their life work, they would add much to the total energy available for society. Such educational work is much more fundamental and profitable than insistence on the mere memorizing of conventional facts in a wider and wider range of subjects.

Another way of developing latent talent would be to improve methods of adjusting individuals to occupations; or rather to provide a method, for at present choice of occupations is almost haphazard. The chief stimulus to man's activity and effort comes from his occupation, and it is therefore of great importance that it should arouse his interest and suit his capacity. Recent developments in the line of vocational training are promising; but a more comprehensive system is needed to adjust workers to the economic needs of society in place of mere reliance upon price fluctuations through variations in demand and supply. The present mal-adjustment has two phases. First, too large a number of young people have no wide choice of occupations. They are obliged at an early age to enter any employment which opens to them, even before, perhaps, their individual aptitudes are apparent. Second, there is the limitation due to ignorance of occupational possibilities. A wider spread knowledge of what the various callings mean, of the characteristics requisite for success in them, and of the possibilities they offer for advancement and for achievement, would be of inestimable value to young people in choosing their occupations.

And finally, it should be added that the majority of workers lack any real interest, or any real incentive for achievement, in their chosen occupations. The ordinary incentive for exertion in economic life, even among the most diligent, arises out of the instinct of acquisitiveness rather than from any aspiration to increase efficiency or to perfect economic organization. Desire for gain may be a strong incentive in any occupation, and, since it stimulates ambition, may easily be mistaken for devotion to the work itself. And while society may profit indirectly from the efforts of individuals to acquire, it would realize a greater gain if the stimulus came from direct interest in vocations. Let the individual find the stimulus for his faculties in his occupation itself, or better still let his absorbing interest become his occupation.

The third effect mentioned by Thorndike refers to the possibility of suppressing or stimulating mental traits through environmental action. Each individual is a bundle of desirable and undesirable traits; or, at least, each harbors within himself possibilities which may develop either into useful or into anti-social traits; although it must be borne in mind in this connection that mental characters useful in one stage of social organization may become harmful in another, so that social utility should be the guide in the selection of mental and social traits. Now external stimuli which tend to draw out desirable and check undesirable qualities are collectively known as good environmental influences; and these it is partly within our power to create.

An attribute of a favorable environment less frequently considered is its capacity to stimulate to activity many, or indeed all, good qualities instead of a few only. To accomplish the best results an environment should be as varied as possible. How often do we see environments which are not evil, to be sure, but merely narrow; whose products are not vicious, but warped or dwarfed, — if such a distinction may be made. A study of all the natural qualities of man, and their favorable relationship in the well-rounded individual, together with a knowledge of the external conditions necessary to mature these characteristics, might easily become a separate science of the environment.

Final Considerations. If the weight of evidence in a comparison of nature and nurture is in favor of nature as the more powerful determinant, still an analysis of the functions of the environment must convince us that the improvement of the environment is by no means a futile reform. Although the environment cannot as a rule affect native qualities, it may influence the health and energy of a child, and it may determine the degree to which inherent characters shall be developed or perfected, and lastly it may exert a selective influence in favor of the development of one trait over another.

Finally it should be added that, of the two agents in social regeneration, the environment is much more easily modified than is the racial stock. In so far as the generation living is concerned native traits are fixed. We must take them as they are and make of them as much as is possible by the use of environmental stimuli. To alter the racial stock is at best a slow process, the results appearing only from generation to generation; but environmental action is direct and immediate for each generation, and for good or for ill its influence is continually at work.

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CHAPTER XXIV

GENETIC SELECTION

Definition. Genetic or reproductive selection, as defined by Pearson, is selection by relative productivity. Applied to plant and animal life, this means that the most fertile determine most strongly the character of future generations. Applied to the human species, genetic selection is more than a matter of natural fertility, for mere potential fertility does not always determine relative rates of reproduction. Individuals or classes in society which for any reason, physical or social, multiply the most rapidly will impress themselves most strongly on the society of the future and will transmit to it their particular characteristics. In other words society in the long run gradually leans in the direction of those that reproduce most rapidly.

The Problem Stated. It may be said at the outset that genetic selection has come to be the most important form of selection in advanced societies, and that the problems connected with it are among the most significant of all those confronting society at the present time. In a previous chapter it has been shown that the natural effects of inorganic selection have been partially counteracted by the growth of sympathy and responsibility towards others; that the action of heterogeneric selection is being gradually lessened by the progress of science; and that autogeneric selection now results in only a small selective death rate. With this passing of the different forms of natural selection, through increasing control of the death rate, the problem of the progressive improvement of the race must depend upon genetic selection through control of the birth rate. Even now society is approaching a crisis in its method of evolution. In learning to control external nature man is freeing himself from the relentless action of natural selection, but he has not yet substituted for it the system of intelligent cultivation. **Blind**

evolution through the operation of natural forces must be superseded by conscious evolution through the intelligent direction of social forces. Until this has occurred society will be in danger of progressive deterioration of its stock.

Briefly stated the aim of genetics is reproduction from the best; but for modern societies complicated by class distinctions and varied standards of living, such a simple statement requires elaboration. In our discussion of the problems of population it appeared that the rates of reproduction for different classes and individuals were governed by quite diverse motives; and that the task of insuring reproduction from the best presented not a single problem but a set of interrelated problems. One of these problems is concerned with the relative rates of reproduction of individuals within each social class, and another is concerned with the relative rates of multiplication of the different classes. But, further, within this general problem of relative multiplication, reproduction of abnormals presents a very different problem from the multiplication of normals. As an ideal of genetic selection, it would appear desirable that the degenerate and those who are seriously defective germinally, should not reproduce at all, that each class should be represented by the best within that class, and that the superior classes should reproduce at least as rapidly as the inferior. However, in practice this general ideal may require some modification, for racial interests are not the only ones to be considered. Society is a complicated mechanism and due regard for the claims of its present welfare as well as for its future development must be shown in formulating a workable program.

The means of attaining the genetic ideal belong to the art, or the applied science, of Eugenics, which has for its object the improvement of the innate qualities of the race. The method of eugenics is both positive and negative. It seeks to stimulate the natural increase of the superior elements in society on the one hand, and it attempts to check the reproduction of the inferior elements on the other hand.

The Fertility of the Unfit. A brief review of the actual rate of increase in different classes in the population will make clear the dangers involved in a laissez-faire method, and the

need of an active program of reform. And, first, the multiplication of degenerates and defectives presents a serious problem. These classes ought to be gradually disappearing from the population, yet actually they are increasing more rapidly than the population as a whole. Mr. H. H. Laughlin, of the Eugenics Record Office, gives the following estimate of the numbers of the various defective classes in the United States for three decades.¹

TABLE XXIII

NUMBERS IN INSTITUTIONS PER 100,000 OF THE POPULATION			
	1890	1900	1910
Blind and Deaf	12.2	18.	16.8
Feeble-minded	8.4	18.8	22.5
Insane	118.2	186.2	204.2
Criminal	131.5	100.6	121.4
Juvenile Delinquents	23.7	28.3	27.2
Paupers	116.6	101.4	91.5
Eleemosynary	179.8	354.6	431.1
Total	590.4	807.9	914.7

Although these figures show a rather startling increase of subnormals they may over-emphasize the actual increase, because in each succeeding decade a larger proportion of the total number were being cared for in institutions. The aggregate for all defectives for different periods is not known, but a more accurate count has been kept of the insane than of others. The Census for 1880 reported 40,902 insane in hospitals, and 51,017 outside; and in 1903, 150,151 were cared for in hospitals, and 30,000 were estimated to be outside hospitals. Thus, while the number of insane in institutions has increased more rapidly than the total number, the total doubled during these years. So long as these classes are kept in institutions, they are not a racial menace; but, as the average period of custody was found to be actually less than five years, institutional life is not a complete racial safeguard. The estimated number of defectives in the population is about 3%, but the total number which it would be desirable to eliminate Laughlin calculates to be not far from 10% of the population.

¹ National Conference for Race Betterment, 1914.

The probable increase in the subnormal class suggested in the above table, finds confirmation in other estimates. Kellicott says that the number of insane in the United States increased from 183 per 100,000, in 1888, to 225, in 1903. In Great Britain the "officially certified" insane increased from 1 in 319 in 1896, to 1 in 285 in 1905. And in Ireland the insane numbered 1 in every 657 in 1851, and 1 in 178 in 1896. England's defective classes increased between 1874 and 1896 from 5.4 to 11.6 per 1,000 of the population.

Undesirables are produced in two ways; first, through individual causes, such as sickness, accident, or other deleterious environmental forces acting on the individual; and, secondly, through inheritance. The latter for practical purposes might be subdivided. In some cases the defects are inherited from parents who are themselves normal but who carry defects as recessive traits. Such cases are of course particularly hard to control. But in the majority of instances defects are inherited from parents who themselves show the defect. This kind of multiplication of subnormals is the most inexcusable of all, yet the chief increase occurs in this irresponsible way. Goddard estimates that about two-thirds of the cases of feeble-mindedness are inherited.

TABLE XXIV

FECUNDITY AND INFANT MORTALITY DIFFERENTIAL BETWEEN NORMAL AND SUBNORMAL FAMILIES

	Normal	Subnormal
Number of Matings	701	1,054
Total Numbers of Children	3,227	4,640
Average Numbers of Children per Family.....	4.6	4.4
Infant Mortality, Male	131	463
Female	109	237
Unknown	27	106
Total	267	806
Percentage, Infant Mortality	8.3	17.4

The point of greatest significance for genetic selection is the rate of reproduction of the unfit, and all estimates show that it is alarmingly high. Laughlin gives an interesting comparison of the fecundity of normal and subnormal families in the United

States.¹ The normal families are represented by professional and business men; and the subnormal comprise families who have one or more members in one or more institutions for the insane, epileptic, feeble-minded, or criminalistic classes.

The above figures give a slightly smaller rate of increase for the subnormal than for the normal; but a similar table, compiled by the Galton Laboratory of National Eugenics, gives a higher average rate for subnormals.²

TABLE XXV

FERTILITY IN PATHOLOGICAL AND NORMAL STOCKS

	Nature of Marriage	Av. Size of Family
Pathological		
Deaf Mutes (England) Schuster	Probably Completed	6.2
" " (America) "	" "	6.1
Tuberculosis Stock, Pearson	" "	5.7
Albinatic " "	" "	5.9
Insane " Heron	" "	6.0
Edinburgh Degenerates, Eugenics Laboratory	Incomplete	6.1
London Mentally Defective, Eugenics Laboratory	"	7.0
Manchester Mentally Defective, Eugenics Laboratory	"	6.3
Criminals, Goring	Completed	6.6
Normal		
Family Records, Pearson	"	5.3
English Intellectual Class, Pearson	"	4.7
Working Class, New South Wales, Powys	"	5.3
Danish Professional Class, Westergaard, 15 years at least		5.2
" Working " " 25 " " "		5.3
Edinburgh Normal Artisan, Eugenics Laboratory	Incomplete	5.9
London Normal Artisan, Eugenics Laboratory	"	5.1
Average of pathological stocks		6.2
Average of Normal Stocks		5.3

It appears that there is considerable variation in results both according to the source of authority and according to districts

¹ National Conference for Race Betterment, 1914.

² K. Pearson, Scope and Importance to the State of the Science of National Eugenics.

studied. Gini says ¹ that in New South Wales the insane and the tubercular increase at a lower rate than the normal. March found ² that in France prisoners and vagabonds increased at a medium rate. They had fewer children than unskilled laborers, but more than some of the wealthier classes. The feeble-minded seem to be more prolific than other subnormals. Havelock Ellis found ³ from a study of 100 feeble-minded and 100 normal families that feeble-minded families are one-third larger than normal families.

It would appear from these figures that the numbers of the pathological classes were at least being maintained by reproduction alone; and, if the numbers produced by environmental causes and by individual variations are added, the relative increase in the population of undesirables is easily accounted for.

The Relative Fertility of Different Classes. The relative rates of reproduction of different classes in the population have already been presented in connection with the discussion of the birth rates. The figures showed that in general the birth rate declines quite uniformly with improvement in social status, but the more detailed studies of occupational groups disclose significant departures from the principle that fecundity varies inversely with wealth. For example, in France, March found that salaried employees had smaller families than manufacturers whose incomes were larger. And Stevenson showed that textile workers in England have a much smaller rate of increase than other unskilled laborers. Some other minor variations in the birth rate according to occupation may be seen from another table compiled by Stevenson and given below.⁴

¹ Contributions of Demography to Eugenics, International Eugenics Congress, Vol. II.

² Fertility of Marriage according to Profession and Social Position. International Eugenics Congress, Vol. I.

³ The Problems of Race Regeneration, p. 32.

⁴ Report of the National Birth Rate Commission.

TABLE XXVI
COMPARATIVE FAMILY FIGURES

	Total	Surviving
General Population	100	100
Coal Miners	126.4	120.2
Agricultural Laborers	113.4	119.6
Boiler Makers	110.1	107.3
Farmers	100.5	109.1
Carpenters	95.3	98.7
Cotton Spinners	91.9	86.7
Cotton Weavers	81.2	76.9
Non-conformist ministers	79.8	85.0
Clergymen, Church of England	72.0	82.0
Teachers	70.3	76.1
Doctors	64.7	72.1

In contrast to this table, figures obtained by Powys for New South Wales are worth presenting.¹

TABLE XXVII
COMPARATIVE FERTILITY OF OCCUPATIONAL GROUPS

Classes of occupations	Marriage rate per 1,000 adults	Average offspring		Comparative net fertility
		Living	Dead	
Industrial.....	40.46	3,779	1,408	5,502
Professional.....	32.81	3,269	1,097	3,861
Commercial.....	29.99	3,507	1,189	3,784
Agricultural, Pastoral and Mining.....	18.18	4,804	1,345	3,142
Domestic.....	15.72	3,436	1,198	1,945

Conditions in a new country, where the population is not dense, seem to be favorable for the professional classes. The significant point of these figures is that, although the industrial classes have a much higher marriage rate and also a higher net fertility rate than any other class, the professional classes rank next. The commercial and agricultural group have slightly

¹ Biometrika IV, No. 3.

larger families, but considering their lower marriage rate they multiply less rapidly as a class.

Figures showing the relative productivity of social groups in the United States are not available; but the studies which have been made of families of college graduates do throw light on the fertility of the intellectual classes. G. Stanley Hall and Theodore L. Smith,¹ in 1903, presented an exhaustive review of the situation and concluded that since 1870 scarcely a class had reproduced itself, the average number of children per class member being less than two. Some of the figures of men's colleges are as follows:

TABLE XXVIII

Harvard	2.22 (1860-69)	1.95 (1870-79)
Yale	2.55 (1861-79)	1.96 (1872-78)
Amherst	3.56 (1825-35)	1.72 (1872-79)
Wesleyan	2.86 (1833-43)	2.31 (1863-70)
Middlebury	2.97 (1844-54)	1.60 (1874-79)
Dartmouth	2.28 (1867)	1.63 (1877)

Mrs. Nearing in 1914 compiled the following figures for women's colleges: ²

TABLE XXIX

NUMBER OF CHILDREN PER 100 MARRIED GRADUATES

Wellesley	126.4	(1875-1901)
Vassar	164.3	(1867-1901)
Bryn Mawr	172.4	(1870-1901)
Mt. Holyoke	182.3	(1890-1899)

Dr. Cattell in his study of American Men of Science obtained results similar to those found for college graduates in general. He ascertained that on the average men of science left less than two surviving children per family.

The number of children of college women does not differ greatly from that of non-college women of similar social position; the average for the former is reported as 1.65 and of the latter 1.874. In England according to a recent study ³ the

¹ Pedagogical Seminary, 1903.

² American Statistical Association. June, 1914.

³ The Fertility of the English Middle Classes, *Eugenics Review*, 12.

average number of children for collegiate women is 1.95 and for non-collegiate women, 2.15, and this difference was wholly accounted for by the later age of marriage of college women. The conclusion reached was that education itself has no effect either upon the capacity or the inclination of women to bear children. And the same conclusion would doubtless apply to the United States. Education is not directly responsible for the low birth rate among college graduates, though it may be responsible, directly or indirectly, for the low marriage rate. So far as they are available, statistics show that the low birth rate in the United States seems to extend throughout the old American stock, at least in the northeastern part of the country; and they show also that, in that section of the country, the population is failing to reproduce itself, the high birth rate coming from immigrant stocks.¹

Fertility and Age at Marriage. The low birth rate among the superior classes has two causes: later age of marriage, and limitation of births after marriage, and the two causes are combined in the same classes of the population. In a few generations this combination counts very heavily against the more intelligent classes.

The effect on the birth rate of the postponement of marriage has been worked out for several countries. The age of the wife in all cases is found to be much more important than that of the husband. Galton estimated that the fertility of women marrying at the ages of 17, 22, 27, and 32 was approximately 9, 7.50, 6, and 4.50. In New South Wales it was found that the relative fertility of women marrying at 20 and at 30 was approximately 5 and 3. In Scotland, where the birth rate is still high, the decline in fertility with age of wife at marriage is still greater. Some of the results obtained for Scotland are as follows: ²

¹ See J. A. Hill, Comparative Fecundity of Native and Foreign Parentage in the U. S. Publications American Statistical Association, Vol. 13: 583.

² James C. Dunlop. The Fertility of Marriage in Scotland, Journal of the Royal Statistical Society, No. 77. February, 1914.

TABLE XXX

Age of wife at marriage	Average size of family
17	9.02
20	7.86
22	6.98
25	5.66
27	4.92
30	3.89
32	3.16
35	2.29
37	1.64
40	.86

Dunlop estimates that the effect of a year's delay in the age of the wife at marriage is to reduce the size of the average family by one-third of a child. However at the earlier ages the effect is still greater. Between the ages of 20 and 25 a year's delay means a difference of .45 of a child.

The actual ages at marriage in different occupations in England was estimated some time ago by Dr. Ogle as follows:

TABLE XXXI

	Age of Bachelors marrying	Age of Spinsters marrying
Miners	24.06	22.46
Textile Hands	24.38	23.43
Shoemakers, Tailors	24.92	24.31
Artisans	25.35	23.70
Laborers	25.56	23.66
Commercial Clerks	26.25	24.43
Shopkeepers, etc.	26.67	24.22
Farmers & Sons	29.23	26.91
Professional & Independent classes	31.22	26.40

Along with the above table the following detailed estimates of the size of the family according to the ages of both husband and wife is worth presenting.

Here again it appears that the age of the wife is much more important than that of the husband. For example, if a man marries at 32 instead of 23 the number of children will be reduced only a fraction, but if the woman defers marriage from 23 to 32 the number of children will be reduced from about 6 to 3, provided the husband is not over 32 years of age.

TABLE XXXII.

PREDICTED FERTILITY OF MARRIAGE FOR SELECTED AGES OF HUSBAND AND WIFE.

Age of Husband	Age of Wife								
	17	20	23	26	29	32	35	38	41
17	9.58	8.24	6.85	5.41	3.92	2.38	0.79		
20	9.31	8.09	6.82	5.49	4.12	2.69	1.20		
23	8.99	7.88	6.72	5.51	4.25	2.93	1.57	0.15	
26	8.60	7.61	6.56	5.46	4.31	3.11	1.86	0.56	
29	8.15	7.27	6.34	5.35	4.32	3.23	2.10	0.91	
32	7.63	6.87	6.05	5.18	4.26	3.29	2.27	1.19	0.07
35	7.06	6.40	5.70	4.95	4.14	3.28	2.37	1.41	0.40
38	6.42	5.88	5.29	4.65	3.96	3.21	2.42	1.57	0.67
41	5.71	5.29	4.81	4.29	3.71	3.08	2.39	1.67	0.88
44	4.95	4.64	4.27	3.86	3.40	2.88	2.32	1.70	1.03
47	4.12	3.92	3.67	3.38	3.03	2.63	2.17	1.67	1.11
50	3.23	3.14	3.01	2.83	2.59	2.30	1.97	1.58	1.14

Galton has pointed out that early marriages, as compared with late marriages, affect the population in the long run in three different ways: more children are born in each generation, more generations are produced in a century, and more generations are alive at the same time. To illustrate the differences, Galton supposes that, of two men, M and N, M and his descendants marry at the age of 22, and N and his descendants marry at the age of 33. He supposes further that the early marriages of race M result in an increase of one and a half in a generation and in the production of three and three quarters generations in a century; while the later marriages of race N result in an increase of only one and a quarter in the next generation and in two and one half generations in a century. According to these suppositions, which are not extreme, the progeny of the race M at the end of a century will exceed the race N in the ratio of 18-7; that is, it will be more than two and one half times as numerous. In two centuries it will be more than six times, and in three centuries it will be more than fifteen times as numerous as race N.

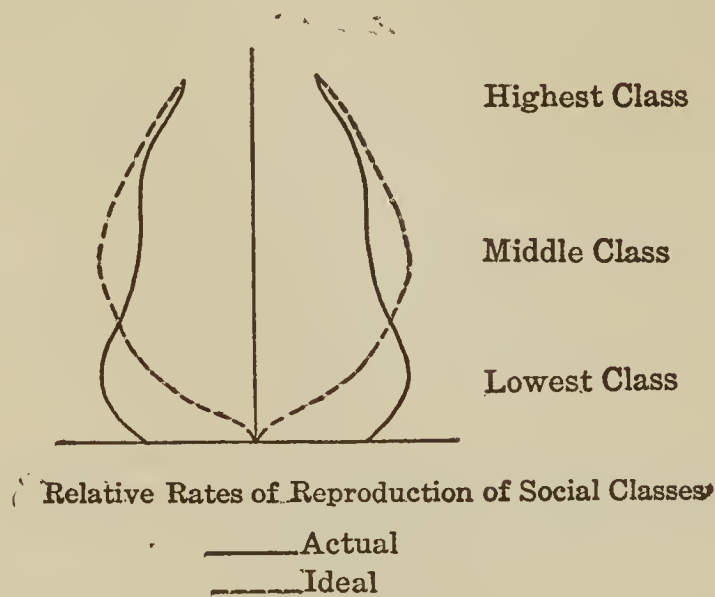
The danger to the state arising out of this differential rate of increase of the population, which causes society to be recruited from the lower classes instead of the higher, is summed up by

Karl Pearson in the following forcible words: ¹ " This is a much more serious result than might appear at first sight. The upper middle class is the backbone of a nation, it depends upon it for its thinkers, leaders, and organizers. This class is not a mushroom growth, but the result of a long process of selecting the intellectually abler and fitter members of society; roughly speaking, its members marry within the caste, and they form opinion and think for a nation. We want every possible ladder for attracting to that class able members of the hand-working classes; but with very considerable experience of those who have climbed such ladders, and some of them are brilliant men, or were brilliant lads at least, I am prepared to maintain that the middle classes (owing to their long period of selection and selective mating) produce relatively to the working classes a vastly greater proportion of ability; it is not the want of education, it is the want of stock which is at the basis of this difference. A healthy society would have its maximum fertility in this class, and recruit the artisan class from the middle class, rather than vice versa. But what do we actually find? A growing decrease in the birth rate of the middle classes; a strong movement for restraint of fertility, and limitation of the family, touching only the intellectual classes and the aristocracy of the hand workers! Restraint and limitation may be most social if they begin in the first place to check the fertility of the unfit; but if they start at the wrong end of society they are worse than useless, they are nationally disastrous in their effects. The dearth of ability at a time of crisis is the worst ill that can happen to a people. Sitting quietly at home without external struggle, a nation may degenerate and collapse, simply because it has given full play to genetic selection and not bred from its best."

The Eugenic Ideal. Before discussing measures for improving the character of the population, it would be well to consider what would be the most desirable rates of multiplication of the different classes and to decide upon some rational goal of endeavor. In a previous chapter it was said that if the total population were arranged according to economic status the

¹ Grammar of Science, p. 466.

form would correspond roughly to an inverted top. Population arranged according to rates of multiplication of different classes would vary only slightly from this figure. If the available statistics for comparative fertility given by Bertillon, Stevenson, and March are combined and plotted it will be found that rates of reproduction may be represented by a pear-shaped figure, as shown in the diagram.



The slight variation in this curve over the population curve is significant as showing an unnatural restriction of fertility in the ranks of the middle class. Such a rate of multiplication is evidently not the most favorable for the next generation, but just what the desirable rate would be is not so obvious. The enthusiastic eugenist is likely to rush to the conclusion that the reverse situation represents the ideal, the inverted top should be replaced by the upright top, the highest rate of reproduction coming from the superior classes with a steady diminution of fecundity to the lowest class where reproduction should cease with the subnormal. Such an ideal, however, is probably impracticable. It indicates an undue solicitude for the interests of future generations and relative indifference to the welfare of the present. Such an important problem as that of the composition of the population calls for consideration of the interests of society as a whole; and the solution requires a delicate balance between present and future well-being.

It seems evident that restrictions upon the multiplication of the defective and dependent classes would be advantageous both

to the present and to future generations, and therefore it can at least be assumed that the ideal calls for a diminishing rate of reproduction among the subnormal. A more doubtful point concerns the rate of multiplication of superiors; but a broad consideration of all the factors involved seems to show that it is both impossible and undesirable for the superior classes to multiply at the highest rate. In the first place it is probable that the mentally superior classes are less fertile than the average of the population. In this connection it is interesting to note that Pearson found for stable races, "that there is a strong tendency for the character of maximum fertility to become one with the character which is the type." The type of a species tends to be preserved through its greater reproductive capacity, individuals departing farthest from the type being least fertile. Of course the degree to which this principle is applicable to the human species is questionable; but it is probable that, notwithstanding certain individual cases, the human race as a whole is no exception to the rule. Wide departures from the average both physically and mentally probably show diminishing fertility. Therefore geniuses, and perhaps also men of high talent, cannot be expected from physiological reasons to multiply so rapidly as the average. And in the second place, for social reasons it is not desirable that the mentally superior should multiply rapidly. There is a social as well as a physiological opposition between individuation and generation. If intellectual superiors are to do their best work for society they require long preparatory periods and they must expend much nervous energy, all of which is inconsistent with the care of large families. Geniuses are social achievements, and society has a right to their products, which should be regarded as ends in themselves. In so far as family cares and responsibilities interfere with the work of superiors the work should be preferred, for it is safe to say that society has profited more from the products than from the progeny of men of genius. To use the ablest individuals primarily for reproduction would interfere with achievement. And then what would become of progress? Here is merely another phase of the problem of the balance between spending and saving.

Extreme saving of racial energy would mean sacrificing the present to the future, and the subordinating of ends to means. All these considerations do not imply, however, that the intellectual élite should have no offspring but merely that they cannot be expected to reproduce at a high rate. Small families among the intellectually superior classes is the normal thing, and to try to increase their size should not be a part of the eugenic program. Furthermore small families among the superiors do not mean so great a racial loss as might be supposed. 'Children who inherit their parents' variations from the average, sometimes lack the balance that was an element in the genius of their parents and become insane. The average offspring of superiors, it must be remembered, are less remarkable than their parents, though they are more able than the average of the population. Most of the superiors are not produced by direct inheritance from superior parents, but are normal variations from parents on the average less able than themselves.

A problem of an entirely different nature concerns that part of the population next below those of the highest ability, — the upper stratum of the middle class. The causes of the low rate of multiplication in their case are largely social and economic; but the nature of their work itself is not such as to necessitate very small families. A proper balance between the needs of the present generation and the next would permit a fairly high rate of reproduction. Moreover this class is socially and racially of very high value. Its work is of a type above that which the average in society is capable of performing, and the superior variations among its offspring become our ablest leaders. The present low rate of reproduction in this class seems to be the result of exceptional, and perhaps pathological, conditions. The chief aim of eugenics on the positive side should be to encourage reproduction in the upper middle class.

The conclusion reached from this consideration of the composition and functions of the various classes in society is that the ideal rates of reproduction of social classes should conform closely to the normal curve of variation. The average in the population, probably represented by the artisan class and small

trades people, should multiply the most rapidly. They compose the wholesome, intelligent mass of the population; and the care of a considerable family would not be inconsistent with their work in society. The less intelligent and less efficient class below them should multiply at a slower rate and the propagation of the subnormal should cease entirely. Of the population above the average, salaried employees and others in the higher positions of industry and commerce might, so far as the interests of the race are concerned, advantageously reproduce at a rate similar to the average of the population; but, inasmuch as it takes time for them to work up to paying positions, marriage will be deferred and their families will therefore normally be smaller than the average; and professional and business men who require long periods of training will multiply at a still lower rate, though the rate may advantageously be higher than it is now. These classes should at least reproduce themselves. Men of the very highest ability and variants known as geniuses will reproduce at very diverse rates; but the average will be low. This low rate is natural and should not cause society grave concern, nor should it be a matter for social interference.

A normal curve of variation, such as that given in the diagram, might represent both the ideal distribution of the total population and their relative rates of reproduction in a stationary society. In a progressive society the ideal distribution of the total population might better be represented by a skew curve, the bulge being above the axis of the mean. This increase among the superiors would not result from a higher birth rate, but would represent the tendency of the best among the lower classes to work up to higher social levels. The skewness would represent the struggle towards higher levels in a mobile society and the final attainment of a higher average of excellence.

Methods for the Restraint of the Unfit. The limitation of the multiplication of the unfit would seem so obviously advantageous both to society as a whole and to the degenerate classes themselves, that the discussion here will deal with the possibility rather than the desirability of restriction. The method most

generally agreed upon in all discussions of the subject is that of their segregation in properly equipped institutions. Such segregation is usually advocated for the insane, epileptic, feeble-minded, and the degenerate criminals and paupers. The desirability of segregation is not solely because of its eugenic effects, but also because it is the most reasonable, efficient, and humane method of caring for a large proportion of these unfortunates. The chief argument against the system is that of expense; but, while the expense would be considerable at first, it would be a net gain to society in the long run, and it would be one of the few social burdens which would diminish rather than increase from generation to generation. Segregation should unquestionably apply to all persons who are both dependent and racially unfit; that is, whenever institutional care would be for the interests both of the individual and of the race, the advisability of permanent segregation cannot be doubted. Segregation limited to such cases, although inadequate for eugenic needs, would nevertheless safeguard the racial stock much better than it is now protected. It would cause the confinement of larger numbers of epileptics and of the low grade feeble-minded. It would permanently restrain paupers, who are now so commonly given their freedom during the summer months, only to reproduce their kind and add to the burdens of the state. It would cause the extension of the system of indeterminate sentences among criminals, so that they could be studied and tested by experts, and, whenever found unfit for normal social life, they could be permanently restrained.

While measures such as these would be beneficial and probably not difficult to execute, the most troublesome problem connected with the subnormal concerns those who are individually independent or self-supporting, but who are racially unfit. To this class would belong the insane who are "cured," some of the less serious cases of epilepsy and feeble-mindedness, and perhaps a few criminals and paupers. Our indifference to social welfare is shown by the fact that whenever individual and racial interests conflict the decision is given in favor of the individual. If the individual can do without institutional care, he is granted his freedom without regard to its effect on future generations.

To cope with cases where individual and racial interests are opposed, sterilization in one form or another has been suggested, and is now recommended by a committee of the American Genetic Association.

The advantage of sterilization is that it meets racial requirements directly, obviating the necessity of physical restraint for those who may be made self-supporting. Permanent segregation in institutions seems a roundabout way of preventing reproduction compared with sterilization, which merely causes infertility and does not interfere with personal liberty.

Legal sterilization has been strongly opposed on the ground that it is an extreme and radical measure and that we still lack sufficient knowledge of heredity and of individual innate characters to execute such a law without making serious mistakes. These points are easily recognizable as the stock arguments against any new or unusual method of social control. The point made is that there is no clear-cut line of distinction between the deserving and the undeserving, and injustice is therefore to be feared. The same objection could be made to our criminal procedure. No sharp line of distinction can be drawn between the good and the bad in society, yet we continue to incarcerate some criminals even though others are allowed to escape. And in our awkward attempts to administer justice we also occasionally penalize the innocent; but we do not therefore abolish our courts entirely. The administration of sterilization laws under the direction of experts would be less liable to error than is our present system of criminal procedure, though no administration can be expected to be perfect. A conservative sterilization law would seem to be a very useful adjunct to the system of segregation, the intention being that in certain cases it should be applied as an alternative to further confinement. In states where a coercive law is objected to, much could still be done by voluntary consent of the patient. In fact more operations for sterilization have already been performed in states having no sterilization law than have taken place under the administration of such laws.

Whenever patients with an inherited taint belong to the intelligent classes, as is frequently the case with the insane,

eugenic instruction is usually sufficient. In fact, better education along eugenic lines has been advocated as one of the important means of improving the qualities of the race. Research in heredity and compilation of information concerning family lines, such as that undertaken by the Eugenics Record Office, is indeed fundamental in the work of racial regeneration. Not only is the knowledge itself essential, but popularization of facts and principles is needed to arouse favorable sentiment and give active support to measures of reform. Yet while education by itself may prove sufficient to cut off defective strains among the more intelligent classes, it would not control the mass of the degenerates who are both irrational and irresponsible.

Another attempt to diminish the propagation of undesirables is by means of restrictive marriage laws. In general the intent of such laws is to forbid marriage to those who are physically or mentally unsuited for marriage or parenthood, and a physician's certificate of health is frequently required as evidence of fitness. Inasmuch as such laws are easily evaded, they are limited in their power to stop the marriage of the diseased or to restrict the multiplication of degenerates, yet they are to be commended as useful educational measures. At least they set up desirable standards and help to mold public sentiment in favor of healthy marriages.

In connection with the various methods of caring for the subnormal already in the population, it is particularly important in a country like the United States to guard against additions from without through immigration. Added precautions in the shape of more stringent laws are not needed so much as more efficient methods of administration. No criticism is aroused if the immigrant population contributes no more to the delinquent and dependent classes than does the native population; but undesirables are a misfortune to be avoided, and the immigrant classes should not contribute to them at all.

Restricting the Birth of Inferiors. The lowest grade of the normal, represented in general by unskilled labor, presents a problem quite different from that of the subnormal. With occasional exceptions, this class is multiplying the most rapidly of any class, and although this rapid rate of increase is not the

most serious part of the eugenic problem, it would be desirable, and probably also within the range of possibility, for this class to multiply somewhat less rapidly than the classes above. Recruiting society from this class is not only contrary to the principle of reproducing from the best, but it results in an economic pressure upon the class above which restricts the multiplication of the superior individuals in that higher class. The advantage to be gained by a smaller birth rate in the lowest class would moreover not only contribute to a higher racial value for the future, but it would bring about greater individual well-being in the present. Any discussion of the relative merits of different classes is always difficult, because class prejudice, and theoretical differences of opinion as well, are likely to be involved. In advocating a restriction of population among the least efficient, there is no intention of reflecting on the value of the normal representatives of the lower social ranks in the population, nor is there any wish to lessen materially their rate of increase. The superior representatives of the group are desirable and even indispensable members of society; but the inferior variations frequently become a burden on society, and these inferiors are likely to be more numerous if the families are so large that proper care and attention cannot be given to the children. Smaller families among the poorest grade of workers would not only give each child a better chance to develop, but it would in the long run decrease economic competition and therefore permit higher wages and steadier employment. Even the extreme environmentalists who deny that those on the lower social levels have a heritage in any way inferior to that of other social groups, must admit that the conditions under which children are reared are the least wholesome of all among the poorest classes; and on that account at least propagation from that class under present conditions is least desirable.

The problem of regulating the reproduction of the lowest class in society, or in fact of any class of normals, is entirely different from that of regulating the reproduction of subnormals. Degenerates follow physical laws and animal instincts, but they do not respond to social stimuli; therefore their control must

involve the exercise of compulsion. But normal individuals are social beings and are subject to social laws. With them reproduction is no exception to the general run of human activities, for it responds to social stimuli and conforms to social laws; and any attempt to influence it by direct or coercive means would be crude and ineffectual. When exceptional rates of reproduction occur, their causes must first be fathomed and then the conditions must be skillfully altered to serve social needs. In a matter of this kind, individuals must, so far as possible, be allowed to follow their inclinations. But it rests with society to direct those inclinations.

In so far as genetic forces are understood, it appears that the high rate of multiplication in the lowest class is the result of their ignorance, lack of ambition, and low standard of living. Its members do not fear falling in the social scale, because they are already on the ground floor level. Having few desires except the physical, they feel little incentive to improve their standards of living. And being uneducated and undisciplined they have little rational control over their emotions and instincts; and naturally therefore social interests fail to control physical desires.

The obvious remedy is to be found in education, in the multiplication of desires, and in the gradual improvement of standards of living. If the lowest class could become imbued with ambition to possess the comforts of the class above them, and if their intelligence and self control could be increased, marriage might be deferred until the average age of marriage of the population as a whole, then families would be restricted to a size consistent with the newly awakened ambitions. Under these circumstances it is possible that this class would increase at a rate lower than the class above, because if they were influenced by similar ideas and ambitions, they could satisfy those desires less easily, being of inferior intelligence and earning power. Therefore, according to the law that social standards are more powerful than the reproductive instinct, those with lower earning power would be constrained to limit the size of their families more than those with higher earning power.

The specific methods by which improvement in the condition

of the lowest class could be accomplished have already been explained in a previous chapter, and they need not be reviewed here. The point may be emphasized, however, that in the United States the restriction of immigration is a particularly important preliminary measure for improving the standards of unskilled labor; and, were effective restrictions enforced, our educational agencies are practically sufficient even now to bring about the desired improvement in standards.

Stimulating the Birth Rate of Superiors. Although it is unreasonable to hope that the portion of the population above the average will multiply at the highest rate, it is well within the range of possibility that they should increase their present rate of multiplication. Any falling off in the birth rate of the lowest class might advantageously be made up by an increased birth rate among the superior classes. The problem of the upper classes, however, is one even more difficult and delicate than that of the lower classes. Again the solution must be sought along the lines of the social forces at work, for only through indirect measures will there be any hope of success. The genetic forces involved are such as to necessitate for purposes of analysis a division of the upper class into two groups: those who have wealth according to upper-class standards, and those who have not. The best birth statistics available indicate that the former division has an even lower rate of increase than the latter, but most of the classifications are not detailed enough to make this point certain. According to March's figures for France, salaried employees had a lower birth rate than members of the leisure class. However this may be, the birth rate in both classes is low and the causes are not entirely identical.

The reason for the low birth rate among the wealthy is not primarily economic. They do not fear loss of position and they have ample means of providing for children. They are influenced rather by personal and social considerations. A craving for pleasure and personal comfort, pride in personal appearance, and the claims of exacting social obligations, all enter in varying degrees into the desire for restriction of family cares and responsibilities. But, above all these personal considerations, is the pressure of a class sentiment which is opposed to large

families, which looks askance at the appearance of numerous children. Large families savor too much of the slums. Family pride is usually strong enough to make desirable a few children, or at least a son; but to be prolific is to be gross.

Conditions in this class may best be met by the creation of a different sentiment. Ordinarily any attempt to direct social forces by exhortation is futile, because the ideals to be altered are not the ultimate causes of action, but are themselves the products of more fundamental forces; and these latter forces require rearrangement before any permanent reform can take place. A wind blowing on the surface of the water causes ripples, but it does not alter the course of the stream. But in this particular case the sentiment does not appear to be the outgrowth of very fundamental forces, and therefore some success might be anticipated in an attempt to counteract one set of opinions by another set. But alteration of class sentiment is always a delicate task. No crude appeal, especially from outside the group, would be effective. The revision of the sentiment must be based on the recognized superiority of the class and its consequent superior obligations. The ideal of social service and philanthropy has become almost a fad, and people of wealth should be made to realize that there is no kind of social service equal to that of contributing to the next generation children of superior quality and training; and that they, with their ample provision for the present, should devote themselves to the welfare of the future. However, new ideals by themselves might prove insufficient for reform, for after all mere sentiment against large families is not the only force to be overcome in the wealthy class. Desire for freedom, self-indulgence, and many other conditions are involved; and it is impossible to estimate the strength of their hold. Indeed the sentiment against large families accords with these other desires, or possibly grows out of them, and therefore it is questionable whether a sense of social obligation can be aroused sufficient to combat such a combination. Still, some way must be found to make impressive the necessity as well as the desirability of increasing the birth rate of superiors.

The intelligent classes in moderate circumstances restrict the

birth rate for reasons largely economic, although closely connected with these, and hardly distinguishable from them, is the modern desire for greater individual freedom. Intelligent women of today are not opposed to children, but they are opposed to becoming household drudges. Inasmuch as they can employ little service, a large family adds heavily to their burdens. Furthermore they have high standards and ambitions for their children which cannot be realized unless family numbers are limited. It is this desire for individual freedom and development, combined with limited resources for attaining them, which chiefly determines the marriage and birth rate of this class of superiors.

These causes are easily enough comprehended but not so easily altered. The standards of this class are on the whole desirable and their ideals creditable; and therefore the problem should be solved, if possible, without interference with these standards. Any useful and effective change must come through an amelioration of economic conditions. Higher average incomes for this class can be obtained only through slow improvements in standards of efficiency, and these can be expected eventually with the growth of more efficient and available educational opportunities. More immediate economic amelioration might come from improved methods of domestic economy and more rational modes of living. The intellectual classes who are in moderate circumstances should be the natural social leaders in promoting rational habits of living. Only within the last generation has much interest been taken in improving methods of domestic economy. Hitherto conditions of labor have been such that the upper classes could rely upon a plentiful supply of servants, and under these circumstances there was little incentive to improve methods. Progress in domestic economy follows much the same laws as those that govern national economy. As long as labor is plentiful and cheap, production is carried on by the direct application of human energy. When labor becomes scarce and expensive, improvements in methods are instituted and machinery is installed. So it is in domestic economy. When servants are no longer plentiful, improved methods and labor-saving appliances will be found. A detailed

discussion of possible methods of improvement would be out of place here; but it may be said that the line of improvement will not be unlike that which has taken place in industry. Progress in knowledge of foods and nutrition will probably make the preparation and serving of food less burdensome. Household inventions and improvements in methods will multiply rapidly and they will be preëminently labor- and time-saving devices. And finally coöperation and division of labor, so indispensable to industry, may find some application to household work. It may be remarked in passing that higher aesthetic standards are in no way inconsistent with simpler and more economical modes of life, as a comparison of the household arrangements of the present generation with those of the preceding will easily demonstrate.

If household cares can be materially lightened and cheapened it is a safe prediction that larger families will appear in the intellectual classes. The care of children would be preferred to the care of the house. It is where the latter is burdensome and unavoidable that the former is sacrificed. This does not mean that household drudgery is the new factor which has entered, in the present generation, to decrease the size of families. The new physical factor is the scarcity of servants to share household duties. But there is present in the situation also a new psychic factor, the desire for individual freedom. In proposing a remedy I have not attacked the new factors, as is usually done when new conditions bring mal-adjustment, because in this case they do not represent degeneration but progress. Individual freedom is a desirable ideal, within limits, and it has come to stay. Scarcity of servants represents a well-earned improvement in labor conditions. Under these circumstances rational reform will work in the direction of bringing related conditions into a new social adjustment. The present low birth rate among the intelligent classes is probably a temporary adjustment which can be modified by new conditions. The new factors affecting the birth rate appeared suddenly, and limitation in size of families seemed to be the only immediate and consistent method of adaptation. But it is a means that would soon prove detrimental to the race, whereas readjustment through improved

domestic economy would be a gain in itself and would also probably prove to be of real assistance in restoring the racial balance.

In considering methods of relief for the intellectual classes emphasis has been laid on domestic economy; but any methods of simplifying the care of children and lightening its burden would conduce to the same ends. For the woman who toils outside the home, the problem of the child is simplified by assistance from visiting nurses and day nurseries where children may be left for a nominal sum while the mother is at work. The establishment of similar institutions for women who are not employed, but who can afford little service, would be even more of an eugenic measure. It would enable mothers to obtain rest and recreation without the expense of a permanent servant and without intrusting children to unskilled hands. The occasional relief that such institutions could give would make the care of children much less arduous.

Other measures have been proposed to stimulate the birth rate of superiors and a few of them would doubtless be of some eugenic value. The danger in most of the general relief measures, such as rewards for large families, is that they will only stimulate further the birth rate of inferiors and will have no direct effect upon the superiors. It has been suggested that tax systems should discriminate to a greater extent in favor of those who have children, throwing the heavier burden on those who have few or no children. Inasmuch as the poor are already exempt from direct taxation, it is thought that such a system would act as a stimulus to the more rapid multiplication of superiors. The principle itself is already recognized in both inheritance and income taxes; but the differential could be increased advantageously for the state, provided it would have the desired effect. An appreciable relief in the burden of taxation would no doubt at least permit children in families of moderate income to receive better care; but it is very doubtful if this force would be strong enough to affect the birth rate itself. However it might be made one of several factors which together would be effective in stimulating population.

The proposition that men who enter the professions should

shorten their periods of preparatory training in order to marry at an earlier age has a retrogressive aspect and would be of doubtful value. In an age of specialization efficiency is the key note, and that is obtained by intensive training. The man with superior training after a few years of professional life is usually farther advanced than the man with inferior training who had two or three years the start. And among the professional classes marriage and children will depend more on earning power than on a difference of two or three years in the age of marriage. In fact, as has already been said, a man's fertility declines but little if he does not marry until he is thirty years of age, though the age of the wife does have an appreciable effect on fertility.

Conclusion. In considering the possibility of altering the birth rate to improve the average quality of the race, I have discussed the various influences which affect reproduction in different classes in the population as well as measures of improvement. But all measures are likely to prove mere palliatives in a society made up of divergent classes. Wherever different planes of living exist it is almost inevitable that those living on the lower planes will outnumber those on the higher planes through more rapid rates of multiplication. Reform measures are likely to fail because they are opposed by fundamental influences. The birth rate will adjust itself automatically to the best interests of society only when class distinctions are eliminated and all parts of society respond to the same general standard. This does not mean a dead level of equality, but variation from an average according to ability. It seems probable that under such conditions the average would multiply most rapidly, and those above and below would increase at a somewhat lower rate; the inferiors, because it would be more difficult for them to maintain standards, and the superiors, both because of the character of their work and because of restrictions due to the long period of preparation for it. In the previous discussion of the economic relations in society it appeared that class distinctions were socially detrimental; and here, again, in connection with population problems, it appears that class distinctions are racially detrimental. The great social problem of the day is the labor problem, the

problem of the distribution of wealth, which in its broad aspects is the question of poverty and riches. The problem of the future, so far as it concerns the present generation, is that of the inherent qualities of the race; and this in turn appears to resolve itself into the problem of classes and of the distribution of wealth. All great social problems are inter-related. If we could view them broadly they would appear as branches from a common root rather than as independent growths each requiring separate treatment. The welfare of the future is closely connected with the health and habits of existing societies. Social justice in the present generation would not only increase our own well-being but would also contribute to the well-being of the future. The chief aim of social reform is to benefit present-day society by improving the condition of the lowest classes, but the accomplishment of this object would be ultimately and indirectly of great benefit to the future. Thus although the environmentalists and the geneticists differ in their theories and in their immediate aims, in the long run their separate programs have the same objective.

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PART IV
PSYCHOLOGICAL FACTORS

CHAPTER XXV

THE SOCIAL SELF AND THE DESIRE FOR APPROBATION

The term "desire for approbation" is employed here in a broader sense than is ordinarily implied in popular usage. It is the fundamental social desire and is based on the natural development of the personality through association with other persons. It is the desire of the individual for self-expression in his relations with other individuals and is therefore one of the strongest motives for associated life. It differs from the other desires in not being the basis of particular social institutions. While it is most clearly manifest in social life in the narrower meaning of the term,—that is association for its own sake,—it asserts itself also in all forms of association whatever their purpose.

Individual Development Through Association. The psychological basis of the desire for approbation has been clearly set forth by the social psychologists in their analysis of child development. The child at first seems to have no idea of self. Indeed, its first conception of personality is that of another's obtained through physical contact with the mother. Later it becomes able to differentiate itself from other persons and other objects, and to realize itself as an individual like other individuals. In other words, ^{the} perception of other personalities precedes a perception of self. This apprehension of the physical self is the first phase of self-consciousness. Other phases follow the same path. (The child becomes sensible of the qualities of other individuals and then applies them to himself; and qualities which he discovers in himself he reads into others. This dialectic of the growth of personality then is a matter of give and take between oneself and other individuals.) The idea of personality is obtained from a knowledge of others interpreted in terms of one's own experience; and the growth of personality proceeds by the alternate steps of increased knowledge of others and of enlarged personal experience.

In this process certain traits in individuals appear desirable and others undesirable; and a composite of desirable traits makes up for the individual at any particular time an ideal personality. In the case of the young child the standard of desirability is necessarily formed from traits possessed by other members of the family. And the qualities which seem desirable are those which afford him pleasure, or those which continually find favor with persons about him, whether such qualities are in themselves admirable or not. As the child's circle of acquaintance enlarges, new characteristics are constantly encountered which must be evaluated. These new characteristics are at first judged by the unconscious standards already formed; but early standards are plastic and may easily be modified and enlarged.

As the child grows older the characteristics of the ideal personality are no longer confined to those possessed by actual associates. Characters, either historical or fictitious, encountered in the course of reading, exercise powerful influences in the formation of his ideals. Thus from knowledge of actual and of fictitious persons a set of ideal traits is formed; and the individual endeavors to develop those traits in himself, or at least he pretends that he possesses them. Other individuals he classifies according to his standard. Those possessing the ideal qualities he approves, and if possible he makes them his associates and accepts them as examples. Persons failing to show desirable characters, or those manifesting conspicuously undesirable traits, do not meet his approval; and, although physical conditions may necessitate his associating more or less intimately with them, their approval of his actions is never so acceptable to him as is the approval of persons who conform more closely to his ideal. However, no one is entirely unaffected by the approval or disapproval of any associate, since there are qualities common to all upon which everyone is therefore competent to judge.

Egoism and Altruism. It follows from this process of individual development that egoism and altruism are not two different and opposing sentiments but are merely separate phases of the general process of personal growth. Either one may become

uppermost according to circumstances. When we meet persons exhibiting new and admirable traits, or when we are surrounded by our superiors, the self feeling is likely to be subordinated to the alter feeling. On the other hand, when we are in company with intimates with whom our relations are informal, or when we are associating with inferiors, we are more aggressive in self-assertion, and the egoistic side is relatively prominent. In the course of individual growth the egoistic and altruistic sides are likely to alternate at different stages of development. Periods of rapid growth and varied experiences absorb the attention and produce an inner concentration accentuating the feeling of self-importance. After new ideas are fully digested and we become accustomed to the higher level of consciousness attained, we lose something of our self-centered attitude and are more tolerant of and interested in other personalities. And when we become dissatisfied with our own attainments and reach out to others for new ideas and experiences, or even when for any reason the achievements or the needs of others are particularly conspicuous, the attention is likely to be shifted away from the self, and the regard for, or consideration of, other personalities reaches its maximum. In the long run the self feeling is likely to predominate, because we do not always recognize the best traits in others, while we can feel and appreciate fully all our own better impulses even when they lead to no external expression; and, knowing all our inner motives, we more readily excuse faults in ourselves than the same faults seen in others. Hence the tendency is for each individual to overestimate the attributes of self and underestimate the qualities of others.

The ideal condition would be equal development of the self feeling and the alter feeling, so that a similar valuation would be put on identical qualities whether found in oneself or in others. In a society of equals this condition would tend to be realized through intimate association, for by such means the true character and worth of each individual would be learned. In a society with class distinctions, however, accurate estimates of other individuals are much more difficult to obtain, for our ideals of personal values are influenced by external signs such as wealth and position. In modern society children early absorb the prev-

alent idea of social inequalities. Their ideas are prejudiced by external appearances and by many forms of subtle suggestion. True association is therefore hampered, and personal traits are not judged by intrinsic worth, and sentiments of inequality are perpetuated. However, it must not be inferred that preconceived estimates are always incorrect. External appearances may frequently be the reflection of actual personal qualities, or actual qualities may be modified if not determined by external conditions.

Individual Development and the Desire for Approbation. The rôle which society plays in the development of personality helps to explain the nature and importance of the desire for approbation. If the individual develops through association with and a knowledge of other individuals, then he naturally estimates his acts from the judgments of others. If their judgment is favorable he is satisfied or even encouraged; if unfavorable, ordinarily he modifies his conduct. Merely to say that the individual is influenced by the opinion of others is however altogether too mild a statement. The favorable opinion of others is so indispensable that its attainment becomes one of the strongest motives for conduct. Social judgments are the common directing agents in the growth of the personality. Sensations of pleasure or of pain, arising out of the judgments of others, guide social conduct just as physical sensations guide the activity of the physical body. To the extent that individuals are similar because of similar social contacts, their judgments are naturally accepted by one another as proper estimates of conduct.

Favorable and Unfavorable Manifestations of the Desire for Approbation. The psychological desires, like the physical, have normal and abnormal manifestations. So far as the individual is concerned the chief advantage of the desire for approbation is realized when he gains from others the best judgments they have to offer. Yet since social judgments may often be diverse or uncertain, it is evident that social approval cannot in all cases be a final criterion and a more stable standard must be found with which to evaluate the judgment of society itself. The objectionable side of the desire for approbation usually appears when the individual makes the satisfaction of social approval an end instead of a means. Evil results do not however

immediately or inevitably follow the direct pursuit of social approval any more than physical injury necessarily results from eating for the pleasure of eating. In both cases nevertheless excesses and perversions are more likely to occur when pleasure is the end sought. The undesirable effects of social approbation are most frequently seen in the excesses of social life. The desire for self-assertion and the struggle for superiority become so absorbing as to interfere with normal development along cultural lines. Even those who seek their pleasure in companionship rather than in social position may carry social relations to an extreme and fail to realize the highest benefit to be derived from social intercourse. The danger is that intimate association, which gives a true knowledge of other personalities, will be replaced by wide superficial acquaintance and a multitude of temporary social contacts. In intense social life of the superficial sort social judgments are likely to be warped and approbation as a social guide to conduct becomes unreliable. Moreover honest and spontaneous judgments are likely to be superseded by guarded or dishonest expressions of approval, given for the mere purpose of affording gratification; and the individual finds enjoyment in them even when he, if less credulous, might doubt their sincerity. Wherever pleasure in the honest approval of society is replaced by satisfaction in flattery, the desire for approbation has become perverted, and no benefit can be derived from it. Social approbation has many methods and degrees of expression, indicated by such terms as flattery, notoriety, praise, power, domination, and distinction. And among the means of gaining approbation are affectation, pose, rivalry, emulation, originality, etc. The development of the desire itself consists in passing from the more ignoble to the more praiseworthy methods of obtaining social approval.

Another danger connected with the social desire arises from possible abnormal or one-sided developments of the personality. The individual may acquire an excessive development of the self feeling as compared with the alter feeling; or, less frequently perhaps, he may underestimate his own value and display excessive humility or subservience. Extreme departures from the normal affect the social relations as well as the individual, for

in the one case the individual is not sufficiently influenced by the opinions of others, and in the other case the individual is likely to be too subservient to the dictates of society. The abnormal character of extreme self-sufficiency, it should be noted, lies in the incorrect relative estimate of individual worth. There is nothing abnormal or undesirable in placing a high absolute valuation on the individual so long as it applies to others as well as to oneself. In fact the higher the estimate we place on the individual, the more mankind will develop, and the higher will be the whole plane of social intercourse. Many social problems arise from failure to appreciate the possibilities inherent in an individual. Social progress might be interpreted in terms of our growing appreciation of the worth of all individuals beginning with ourselves. Unequal and incorrect estimates of individual values lead to social injustice and oppression; but the inability to appreciate individual worth leads to individual degradation and vicious social relations.

Social Results of the Desire for Approbation. The desire for approbation stimulates progress both in a positive and a negative manner. The negative action appears in those cases in which individuals conform to social customs and usages merely to avoid the pain of social disapproval. The positive aspects of the desire cause individuals to seek the pleasure of the definite approval of society instead of being satisfied with merely escaping notice or adverse comment. The individual may gain positive approval either by punctilious or meritorious conformity to group standards or by introducing innovations which do not depart too widely from group customs. On the whole the chief effect of this desire is to produce conformity; and it may be made a powerful, even a brutal, method of self-control.

• This social desire, in giving us a better knowledge of other individuals and in increasing the realization that they are like ourselves, stimulates the growth of sympathy and aids in the attainment of brotherhood. Brotherhood is the term used by Mackenzie to express the social ideal; and, as the social desire is a prominent factor in attaining this ideal, its normal action is consequently of the utmost importance. The kind of social relation which will be favorable to brotherhood is that based on free

and unreserved association, by which is meant the absence of mental as well as physical impediments. Not only must the environmental conditions be such as to permit free association, but the association must be carried on with perfect willingness to know and to estimate candidly the personalities of others. Prejudices, or preconceived notions of superiority, are inconsistent with perfect freedom of association. Psychological relations which permit association without restriction, together with social relations which tend towards actual equality are the conditions essential for the final attainment of complete brotherhood and democracy.

Notwithstanding the numerous perversions of the desire for approbation, the growth of a strong social sense is of the utmost importance for the proper development of the individual. A large part of society still lives within the bounds of the physical desires. Such members are merely superior animals, or perhaps even less than that. They are contented with the satisfaction of physical needs and fail to respond to the stimuli arising out of the social desire for self-expression. Self-consciousness being still undeveloped, they are insufficiently sensitive to the judgments of society as a whole. Their estimate of individual worth is uniformly low. Many reformers with a sincere desire to improve the condition of the less developed classes in society assume that the chief need calls for the higher spiritual influences to be found in art, morality, or religion; when what is actually lacking is that phase of the normal development of the ego resulting from a high grade of social intercourse, and the formation of high ideals of personality. Three phases of individual growth are recognizable. The first is that of superior animals, and the next that of social beings, and from these preliminary types is developed a more intellectual or spiritual personality. Every individual who reaches the highest plane passes through the early stages of development, but development may be arrested on any one of these levels if the individual is sufficiently fascinated by the pleasures it affords, or if he remains insensible to the possibilities of the higher levels. Therefore whole groups in society are to be found permanently established on one or another of the levels and governed in the main by the motives prevailing on that level.

While a strong social desire does not represent the highest phase of development, its place in individual and social progress should not be overlooked. It serves primarily to develop the individual; but in so doing it regulates and perfects the activities of the lower physical plane, and prepares the individual for the highest spiritual achievements. The economic result is to raise the standard of living, and the genetic effect is to regulate the growth of population. In the interests of society as a whole therefore its influence should be brought to bear on the lowest class as well as on other classes so that all may be influenced by the same general motives, and greater social unity may thereby be promoted. Only under these circumstances will the survival of the best be assured.

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CHAPTER XXVI

SUGGESTION AND IMITATION

From the preceding discussion it appears that the desire for approbation is one of the chief motor forces in social life; and this force operates by means of two great processes, imitation and opposition. This desire is principally an unifying force and the most important social process by which unity is attained is imitation.

Imitation and Suggestion Defined. In this discussion the term imitation will be used broadly to mean the transmission of acts or ideas from person to person, either consciously or unconsciously, through the mechanism of the mind. It is the agent of social heredity which supplements physical heredity, — the latter dealing with the transmission of qualities through the germ cells, as the former treats of their transmission through the mind. Tarde defines imitation as “the action at a distance of one mind upon another and of action which consists of a quasi-photographic reproduction of a cerebral image upon the sensitive plate of another brain”¹

Imitation is not necessarily present simply because two persons or groups do the same thing. They may merely have chanced upon similar kinds of behaviour; or similar conditions may have suggested similar lines of conduct. On the other hand, imitation may be the true explanation of an act even though the process is not immediate, nor the influence even conscious. Therefore imitation is a more frequent cause of individual or social similarities than the casual observer would suppose.

Imitations involve at least two persons, the imitator and the imitated; or, as they are sometimes called, the originator and the subject. In the process of the transmission of ideas, the part played by the originator is usually called suggestion, and that

¹ Laws of Imitation, p. xiv.

played by the subject is called imitation. Ross says that suggestion and imitation are two aspects of the same thing, the one being cause and the other effect. While this point of view is a useful one for the discussion of social phenomena, it involves a broader use of the term suggestion than that usually given it by psychologists. McDougall defines suggestion as "a process of communication resulting in the acceptance with conviction of the communicated proposition in the absence of logically adequate grounds for its acceptance."¹ In other words suggestion is here confined to those impressions which enter the mind without supervision from the critical faculties; ideas acquired as a result of fixed attention and logical conviction would belong to a different class, and come under the head of persuasion. According to this distinction then imitation would result either from suggestion or from persuasion; that is, there may be logical as well as non-logical grounds for imitation. But good authority exists for using the term suggestion itself in a sense broad enough to include both forms of communication. Bechterew defines suggestion as "in general one of many means of influence of man on man that is exercised with or without intention on persons who respond either consciously or unconsciously."² Inasmuch as the sociologist must recognize both forms of communication, and inasmuch as conviction in the acceptance of an idea is after all a matter of degree, it will be most convenient to use suggestion here in the broad sense; and when it is necessary to indicate specifically the persuasive rather than the spontaneous character of its acceptance, suggestion may be sub-divided into logical and non-logical forms, corresponding to different forms of imitation.

Different Methods of Receiving Suggestions. Inasmuch as the spread of ideas in society depends upon the character and the suggestibility of the subject, as well as the source of the idea, some of the principles of the repetition of ideas may be considered, first from the point of view of the suggestibility or receptivity of the individual. Suggestions are reproduced with varying degrees of strength and accuracy under different conditions. In

¹ An Introduction to Social Psychology, p. 100.

² Park and Burgess, Introduction to the Science of Sociology, p. 408.

the hypnotic state, where the will is no longer under control, no resistance is offered to suggestion, and the majority of subjects respond accurately to the direction of the operator. In the normal mental state suggestion meets the minimum of opposition in crowds and mobs. In such compact groups minds act forcibly upon one another and an idea once received spreads quickly without appreciable resistance. Calm deliberate judgment has little chance against mob spirit. At the other extreme, the minimum degree of suggestibility is found in individuals whose emotions and acts are habitually controlled by conscious reason. In the critical mind suggestions are not received automatically but are subjected to scrutiny; but those bearing the force of conviction may be received more readily by the critical than by the non-critical mind.

Suggestions therefore may be very differently received, especially by the more critical minds. If the suggestion is contrary to habit or to principle, it may be so completely resisted as to have no effect at all; or it may have that negative influence, so to speak, of causing an individual to show his contempt for it by following the line of conduct opposed to it.

On the other hand suggestions may be accepted and acted upon with no resistance or modification, even by the critical mind. A suggestion is received readily if it pertains to a subject of which the recipient is ignorant, or concerning which he holds no decided opinion, provided the source of the suggestion is considered authoritative. And a suggestion is also easily accepted if it coincides with, or gives support to, ideas previously held by the subject. In the first case, where the recipient is ignorant, critical judgment is suspended and the result depends more upon the character of the source than upon that of the recipient. In the second case, where the new idea supports opinions previously held, the critical faculties aid the acceptance of the suggestion, and therefore the intelligent may receive such suggestions more readily than the unintelligent. The acceptability of this last kind of suggestion depends less upon the character of the source than upon the mental state of the recipient.

Finally, the most common method of meeting suggestions among the more intelligent is that the suggestion is neither accepted

nor rejected unreservedly, but is adopted in a form modified by ideas previously held or by habits already acquired. Very frequently new ideas may be examined and found to contain points of merit, and yet be inconsistent with established beliefs. Such ideas are not utterly rejected, but are filed away in the mental cabinet and ultimately accepted with reservations. For example, the idea of evolution has found widespread partial acceptance, each person or group making modifications or rejections to conform to previous opinions, perhaps to uncompromising religious beliefs. It is quite possible of course that a new idea or theory may prove so convincing as to modify materially or even displace entirely an old idea; but as a rule ideas long held are so resistant to change that new ideas are forced into adjustment with them.

This conscious modification of ideas as they pass from one individual to another brings us to the border line between repetition and invention. Social imitations are never perfect reproductions of the originals, and inventions are never wholly unrelated to old ideas. Therefore the distinction between inventions and imitations is not clearly marked. The mere mutilation of an idea, or a theory, to adapt it to a previous mental equipment could seldom be dignified by the term invention; but a combination of several ideas into one which could perform a new service or better satisfy a given need, could reasonably be called an invention.

Reasons for Differences in Suggestibility. The discussion of suggestion and imitation from the point of view of the character of the recipient might lead to the belief that the unintelligent are more suggestible than the intelligent; and that a purely imitative society would be one in which the individual units are least governed by rational thought. But such a conclusion would be incorrect. The specific quality of the mind which resists suggestion is the will. Persons of independence and determination are likely to be the least suggestible of all. The reasoning faculties are the authoritative selective agents, sifting the desirable from the undesirable. The will power is the servant guarding the entrance. Although independence is an admirable quality, to assume that the socially desirable man is the non-suggestible one would be far from the truth. Independence

carried to an extreme becomes stubbornness. The socially desirable man is the one in whom will and reasoning powers are well coördinated. He readily accepts desirable suggestions and firmly resists undesirable ones. The person with a weak will frequently accepts suggestions which his reason tells him are undesirable. And the person with a strong will but poor critical faculties asserts his independence by resisting all suggestions without regard to their desirability.

The effect of suggestion upon different types of individuals is easier to estimate if we recognize two phases in the process by which suggestion acts: first, the susceptibility of the subject to the idea presented, and second, the ease or accuracy with which the idea becomes realized in the subject. Baudouin calls the first phase acceptivity and the second suggestibility, though most psychologists regard the first phase as the important part of suggestibility. Both these phases are stronger in children than in adults. A high degree of acceptivity is undesirable as it indicates passivity and lack of attention. It is not desirable however that acceptivity should be wholly indiscriminating but only that it should remain capable of control through the cultivation of the mental powers. The trained mind exercises discrimination with regard to the acceptance of ideas. On the other hand suggestibility in the sense used above, that is, easy realization of an idea in the subject, is highly desirable. It is important for the individual to be able to utilize desirable ideas presented. Capacity to do so depends, according to Baudouin, on the sensitiveness and plasticity of the nervous system, and power may be increased by training.

While the above principles refer particularly to non-rational suggestion, they apply also to rational suggestion or persuasion. The differences in the reactions of trained and untrained minds to ideas presented through argument is that the trained mind exercises the greater discrimination. The unintelligent may accept a variety of ideas, sometimes even those inconsistent with one another; but again they are just as likely to reject new ideas with equal inconsistency. Indeed the most stubborn resistance to new ideas comes from the unthinking, and from persons with "one idea." With the unthinking, mental habits and processes

are fixed and new ideas are such rareties to them that they receive innovations with suspicion and opposition, rather than with hospitality, and, looking upon them as disturbing factors, close the doors of their minds to them. On the other hand the more intelligent the individual, the more tolerant he is towards new ideas. His mental equipment is not rigid, but elastic, and while he by no means accepts all the ideas offered, he is tolerant of them. The door of the progressive mind is left ajar.

The intelligent are also more responsive to suggestion in its second phase, being much more skillful in utilizing ideas once accepted. In the process of utilization, however, new ideas are more likely to be modified by the intelligent than by the unintelligent, and it is for this reason that the unintelligent are popularly supposed to be the most perfect imitators. An idea which has succeeded in penetrating a vacant mind usually finds there plenty of room. It does not have to adjust itself to a host of previous guests, and therefore persists in approximately its original form. Such a mind does not give birth to inventions. On the other hand, while a new idea may be more acceptable to a thinking mind, it is brought into contact with and influenced by previous ideas and concepts, in so far as the mental equipment is organized into a rational whole. It is in such minds that happy combinations and modifications of ideas result in true inventions.

Still another factor has to be reckoned with in comparing the imitativeness of different classes of people, and that is the state of the emotions. Among the unintelligent the emotions are untrained and not easily controlled and therefore, under conditions of emotional stress, suggestions may be unresisted; and, when the appeal is to the lower senses, the resulting action may be surprisingly quick and vigorous. It is of such material that mobs are made. On the other hand individuals who are accustomed to control their emotions and to evaluate new ideas are the despair of the agitator and the demagogue.

The above conclusions apply, however, only to the side of the recipient in the imitative process. A complete explanation of the spread of imitations requires an analysis of the origin and the nature of the ideas suggested as well as the responsiveness of the

subject. It is only in those cases in which new ideas come from an unknown source, or from a source of no social significance, that the character of the recipient alone suffices to explain the spread of suggestion. Further considerations of the influence of the originator of suggestions will be discussed from the point of views of imitations; but first distinctions should be drawn between the different forms of imitation.

The Forms of Imitation. Imitations may be classified on a basis similar to that of suggestions though three forms of imitation may advantageously be distinguished, the forms representing different degrees of independence of action. The first is involuntary or ideo-motor imitation, in which one individual follows the example of another through reflex action, or at least without conscious intent. This kind of imitation is exemplified by muscular movements such as yawning. The other two forms of imitation are both voluntary, but one is rational and the other is non-rational or social. Non-rational imitation occurs where one individual imitates others because he wishes to be like them or desires their approval. In this case the incentive to imitation comes from the desire for approbation rather than from the exercise of reason. It is usually the expression of the desire to conform, and is well illustrated by the spread of fashions. Rational imitation occurs when an individual does exercise judgment in his choices, even though he still follows the lead of others. This case differs from the second in degree only, and brings us to the outer limits of imitative conduct. One may follow a course of action because it best suits his need without being influenced by the example of others, but such an act would not be imitative. Cases of this kind are rare however. Ordinarily one does not act as others do without being influenced by them to some extent at least; therefore the factor of imitation is almost always present even in cases of rational action.

Involuntary imitation is of interest chiefly from a psychological point of view, though its effect upon the social relations cannot be ignored. A person may eventually come to imitate a nervous action in another, into whose company he is constantly thrown, even when he does not wish to, and even if he does not approve of the person himself. Association with persons of bad

habits is therefore always dangerous. Association, as well as heredity, is probably accountable in some degree for similarity in physiological traits among members of the same family, for children are particularly liable to involuntary imitation. Involuntary imitation from its very nature does not operate primarily because of the desire for approbation. But it is possible that greater resistance is offered even to reflex imitations of acts which are not approved.

The Province of Non-Rational Imitation. From the point of view of the analysis of social processes voluntary imitation, especially in its non-rational form, is of most interest. Rational imitation is the greater cause of progress, but non-rational imitation is the surer cause of uniformity. Rational imitation is exemplified by persons of independence of thought who are continually subjecting social acts to standards of judgment. Non-rational imitation is manifested by the more completely socialized, by that great mass of society which follows social standards as a matter of course. Their attitude serves to assure social unity, and unity and stability are the normal foundations upon which social life is based. The introduction of new standards, or the revision of old standards, can be tolerated only at infrequent intervals, and then only if the new is manifestly superior to the old. A continuance of old methods ensures the advantages of routine and habit, that ease of action demanding only the smallest expenditure of energy and permitting the attention to be concentrated upon other things. Social customs, therefore, like individual habits are necessary to facilitate social life. Three classes of activities, both for individuals and for societies, may be distinguished: those which are unconscious and automatic in their action, those which are conscious but habitual, and those requiring conscious attention and frequent decision. In social life a few operations, such as sewerage and lighting systems, have been reduced to the automatic stage. A great many others are habitual, such as the routine of business and of parliamentary procedure. A legislative system once decided upon is followed year after year as a matter of course with a consequent saving of time and energy. Yet the process is not automatic, but requires conscious attention and a knowledge of

rules. Finally in all departments of social life occasions arise more or less frequently which require the exercise of reason and new decisions, such as the passing of new laws, or the frequent reorganizations and adaptations in business life necessitated by new conditions. Progress is achieved by reducing some of the conscious rational processes to the routine stage and some of the routine processes to the automatic stage, through superior organization which releases energy and permits concentration upon new issues. Not all processes can be reduced to the field of custom, but the number is gradually being extended. For example, the sliding scale of wages is an attempt to reduce a very troublesome problem to routine procedure.

The above analysis of social activities serves to clarify the nature and province of imitation, which is so closely connected with the formation of custom. In all social institutions customary action forms a shell or frame work to protect and aid the changing mental products within. While custom has its place in practically all departments of social life, it has a field of wider usefulness in the more material than in the more intellectual departments. In religious organizations, although ritual and routine practices may assist worship, belief itself should be consciously rational. In political life detailed organization is doubtless essential to the smooth working of a complicated system; but views and beliefs should be matters of independent judgment both to ensure individual development and to stimulate social progress. Economic life offers perhaps the widest opportunity for imitation, because in it not only can methods of production be reduced to routine, but consumption also, the choice of the product, can to a great extent be made a matter of custom or of fashion. For example, widespread uniformity in such matters as dress and food is both practicable and desirable, permitting large scale production and consequent cheapening of products. Constant changes in fashions would interfere with both continuous and large scale production, necessitating incessant designing of new styles and patterns and continuous readjustment of productive machinery.

In social life also imitation and custom have had a wide application. Any extension of social contacts is accomplished

with difficulty, a certain amount of doubt and hesitation being always present when persons first meet whose characteristics are unknown to each other. Prescribed ceremonies, observed by all, serve to smooth the path of social intercourse. Common formalities make approach easier than it would be if the reactions of new acquaintances were uncertain and varied; only friends of long standing can afford to discard formalities, as hindrances to intimate relationships. On the other hand, it is also true that formalities set up desirable barriers to sudden intimacies. The ceremonials of society ensure a kind of probation period during which the unknown individual may be tested. If judgment is adverse, closer intimacy may be avoided merely by retaining the barriers of convention, for continued formality gently repels while an informal approach invites intimacy. The conventions of social life then form a sort of anti-chamber for preliminary observation which may be used either to facilitate or to retard social relations; and fewer mistakes are made in the cultivation of new acquaintances if everyone follows the formalities of social life.

The discussion so far has indicated the desirable rather than the actual limits to imitative action. In practice the less critical members of society are ruled by imitation in all aspects of life which interest them and in which they are unable to form independent judgments. They imitate therefore not merely in concrete matters, such as methods of production or forms of recreation, but in political views, scientific and religious beliefs, and the whole field of thought. Of course the individual, while borrowing his beliefs, may still exercise choice as to the party or group to which he shall conform, yet even this is ordinarily determined for him by social heredity or by external circumstances. But, having once identified himself with a particular group, the individual accepts the group judgment on all new questions which may arise. The true imitator shows complete loyalty. He does not accept some group judgments and reject others.

Progress in democratic countries calls for a reduction in the amount of non-rational imitation in opinions and beliefs, and the substitution for it of rational imitation and increasing indepen-

dence of thought. The frame work of customary action surrounding our vital mental products has been represented here in its most desirable aspects; but to ensure its continued utility custom should not become so rigid that in the course of changing needs and conditions it obstructs rather than aids social achievement. Customs that are rigid, or even too complicated, not only hinder freedom of action but come to be revered as ends in themselves rather than as means, and so resist revision. The reorganization of these outworn adjuncts to social life produces what we call revolution.

The Laws of Imitative Choice. *Ideas vary in power of suggestion.* Having now discussed imitation from the side of the suggestibility of the subject, we may turn next to the character of the source and ask, why an individual imitates one idea more readily than another? And why is he more responsive to one source of suggestion than to another? The suggestibility of the individual explains his tendency to imitate, but not his tendency to discriminate. His responsiveness to particular acts or ideas is, according to some writers, due partly at least to the inherent character of the idea or act. Certain types of suggestion, it is said, spread more easily than other types. For example, according to Tarde, among the physical desires thirst is more contagious than hunger; and therefore the use of drinks spreads more easily than the use of viands. The sex appetite is more susceptible to suggestion than other physical desires. Bodily movements, like gestures or rhythmic motions of the legs, yawning, or even tone of voice, are all easily imitated. And, he adds, "the functions of the higher senses are more transmissible through imitation than those of the lower. . . . We are much more likely to copy someone who is looking at or listening to something than someone who is smelling a flower or tasting a dish." Again he says, "All passions, needs for luxury, are more contagious than simple appetites and primitive needs." While these statements are doubtless correct it seems doubtful if the explanation is to be found in the principle that sight and hearing belong to the higher senses. Is it not rather that a wider range of possibilities is connected with them, and that it is easier to satisfy our curiosity concerning them? When we see others

gazing intently at something our curiosity is aroused because the object might be of any nature, wonderful, dangerous, or ridiculous; and as the satisfaction of our curiosity puts us to no inconvenience we look also. But if we see anyone tasting a dish our curiosity is not aroused by the same breadth of possibility. Even if we have not already experienced the taste, as it would put us to considerable inconvenience to get a sample of the food and taste it, we do not satisfy the slight curiosity aroused. Tarde's proposition that the use of drinks spreads more easily than the use of viands is also open to question. The rapid spread of a new confection, or of a well advertised breakfast food, leads one to question any universal application of the distinction. The unequal spread of such articles of consumption may be more reasonably explained on some other basis than the mere distinction between food and drink.

In mental states also a similar difference in power of suggestibility is thought to exist. Tarde goes on to say that admiration, confidence, love, and resignation are superior to contempt, distrust, hatred, and envy; hope is more contagious than terror, and indolence than ambition and avarice; while curiosity is the most imitative of all. And imitation of the emotions spreads more rapidly than imitation of ideas. Inasmuch as these subjects have been only superficially investigated, these observations are given merely as interesting preliminary opinions, but further study is necessary before trustworthy conclusions can be reached. It seems doubtful if the above distinctions would always hold. Some ideas seem to spread as rapidly as sentiments. And it is hard to believe that terror is always less contagious than hope. It is questionable if the right basis has been hit upon for the comparative contagiousness of different mental states. However Ross seems to be in substantial agreement with Tarde's statements, and consequently they are given here as supported by excellent authority.

While it is quite possible that the great diversity in power of contagion of different ideas or acts is influenced by their inherent natures, physiological or otherwise, their contagiousness depends to a much greater extent on the social conditions under which they present themselves and the relation of their source to the imitator.

Imitations proceed from superiors to inferiors. In his explanation of the laws of non-rational imitation, Tarde says that we imitate our superiors. But this general assertion requires considerable modification, for many persons who, in the ordinary understanding of the term, are our superiors we never imitate at all. Within the narrow circle of our actual associates we do imitate those whom we admire; or, if we do not imitate them directly, we follow such models as will earn for us their approval. Even in those larger activities into which imitations extend beyond the limits of our associates, we are still guided chiefly by their opinions; and we follow the pattern which they approve rather than that which is actually first in rank. Therefore, in place of the general assertion that we imitate our superiors, it would be more correct to say that we imitate those having prestige within our particular group, remembering in this connection that one person may have prestige in one line of conduct only, and that all persons are ordinarily members of several groups. We may imitate one person completely in one department of life and yet use him as a model in no other. In the matter of fashions and of social conventions we imitate social superiors; but we do not necessarily imitate the same leaders in beliefs. We may have a leader for each different department of life, who influences if he does not determine the formation of our opinions. A multiplicity of leaders is possible, however, only as associations widen and group ties weaken. With the majority a leader who gains prestige in one line is likely to exert an influence in other lines also. Catholics respect the views of the Pope on non-religious subjects much more than do Protestants. Conversely the failure or weakness of a leader in any line tends to weaken the prestige of his leadership as a whole. Even the morals of the head of the opposition are much more open to suspicion than are those of the respected leader of our own group. The modern advice to rural pastors to become practical farmers is not so much for the purpose of actually acquiring leadership in that line as of strengthening their general prestige, for in rural communities intellectual leaders are scarce. When a group is small and undifferentiated, a leader will be accepted and imitated in a larger number of ways. In the small family

group the child imitates his parents in all respects. And even adults may belong to groups which so absorb their interests that they accept the opinions of leaders on a great variety of subjects. It may be concluded then that social superiors having prestige are imitated; but those to whom we concede prestige are largely determined by the nature of our interests and by the size and character of the social group.

Sometimes superiority in this modified sense is not very evident. Superiors of apparently equal prestige often express divergent views and a choice between them is difficult. The imitator hesitates, and his final decision appears to be an act of judgment; yet in reality the smallest incident may have been the determining factor. He may have discovered that one of the leaders was the relative of a dear friend, or he may have heard him speak, or have grasped his hand. The intimate personal touch is often quite sufficient to make the final decision in the choice of a leader seem logical.

While imitations ordinarily proceed from superiors to inferiors, occasionally the reverse is the case. Slang expressions from the street, games, or even styles of dress may start from below and permeate all classes of society. In such cases, however, the desire for approbation is not the controlling influence and the act spreads because of its inherent interest or because it appeals to the sense of humor.

Imitations proceed from the unilateral to the reciprocal. If there is a mutual character to the action, that is, if the act requires some degree of recognition on the part of another, imitations will normally spread from the lower to the higher. Both Spencer and Tarde have noted the general law that imitations proceed from the unilateral to the reciprocal; and they illustrate the point from the history of ceremonials and of trade relations. The beginnings of trade have been traced to the offering of gifts by the inferior to the superior, but later the recipient began to recognize the offering by some slight token, and finally interchange of goods was made on an equal basis. Ceremonials, too, started from a form of obeisance and ended in a mutual exchange of formalities. However, a law that imitations proceed from the unilateral to the reciprocal could never be of general

application. In the first place, it could be applied only to those acts which require recognition or are mutual in their nature; and secondly, its application would depend on a general tendency in a society towards a feeling of greater equality. So long as the superior individual remains isolated from the mass because of his position, acts do not become entirely reciprocal. The superior always receives more than he gives. Hence the force of imitation is never so strong from lower to higher as it is from higher to lower. When acts do become reciprocal the implication is that the inferior has risen or the superior has fallen in relative importance.

Imitations proceed from custom to convention. A third law of imitations is that they proceed from custom to convention; that is, at first imitation is of the past, and then later we imitate the leaders and products of our own time. This formula, again, must not be taken as a description of the imitative process so much as for a statement of social changes which sometimes occur to affect our ideals of superiority. Ordinarily these changes indicate progress in society, but they do not necessarily do so. One reason why people imitate the past is due to the facility of habit. It is so easy to use again the methods we have once tried that we continue to employ them as long as they prove successful. Thus we tend to repeat our own acts as well as to imitate past generations. A second reason for imitating the past is the extreme respect each generation has for its ancestors. When this feeling is strongly developed in a people, it becomes a sacred reverence for the methods of the past, and the longer these methods have been in operation the stronger will be their grip. With such a people imitation of the past will continue so long as the environment does not change, or so long as the range of association is narrow. Enlarged association, ensuring contact with new methods, is likely to undermine the sway of custom, yet it is not always sufficient to destroy it. If rational imitation always held sway, custom would usually yield to convention as associations broadened, for the old would be compared with the new and the superior would be chosen. But, so long as imitation is non-rational, the prestige of the past generally remains the controlling factor, and old methods and beliefs persist in the

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face of superior ones. To overcome custom in such cases, society has to evolve strong leaders who support the new ideas and force their introduction. In some way, at any rate, the prestige of those who favor the new methods must become so strong as to overbalance the prestige of former generations. Sometimes a foreign people attain a prestige which induces imitation of their methods, when the same methods would not be accepted from another people held in less esteem. In that case the determining influence comes from the foreigner directly rather than through the intermediary of native leaders.

In passing from custom to convention some element of rational imitation is usually present. If it were entirely absent it is doubtful if the prestige of the foreigner would be strong enough to overcome the authority of the past so long as a group remained distinct and independent. But if it happens that the individuals of a group wish to become identified with another group, then they may abandon their ancient customs and adopt new ones even when the innovations are not superior. Many imitations are neither wholly rational nor wholly non-rational, but combine the two elements in varying degrees. One country may copy the form of government, the military system, or the educational institutions, of another country because of conscious need for improvement in its own institutions. But at the same time, its choice of one country instead of another as its model may simply be because of the greater prestige that country enjoys among its own people. Whenever custom yields to convention it indicates not only the existence of increased association but also the attainment of a wider degree of socialization.

Imitations proceed from within outward. And lastly Tarde formulates the law that imitations proceed from within outwards, that is, the imitation of ideas precedes the imitation of their expression, and the imitation of ends precedes the imitation of means. We imitate the spirit of a period before we imitate its arts and fashions. The Italians of the Renaissance became Greek in spirit before they imitated Greek expression. In accepting a new religion we adopt its principles before we practise its rites. Loyalty to a great leader precedes obedience to his commands. And imitation of ideas precedes the imitation of their means of

expression in language. Tarde sees final proof of this principle in survival of customs after the spirit which gave rise to them has passed away, indicating that the inner idea has changed while its outward manifestation remains. Although many examples can be cited in support of this law, instances persistently occur to the mind illustrating the opposite course of imitation. For example, servants frequently imitate the outward acts of their masters without appreciating in the least the reason for an act. And primitive peoples often show their acceptance of a new religion by practising its rites long before they have grasped the spirit of the religion. Tarde's principle seems to describe a type of imitation which is effective and desirable, but one which is not universally operative. In his discussion of his law, the author passes to those forms of imitation containing a large proportion of the rational element. The truth of the whole matter is that, to the degree that they are rational, imitations do proceed from within outward; but when imitations are non-rational they are more likely to begin with outward manifestations, or external acts, than with the spirit which prompts them.

Laws of the Spread of Imitation. From this consideration of the reasons for imitation and the course of imitations, we may next proceed to a discussion of certain fundamental principles concerning the spread of imitations. These principles, like the preceding, are based on Tarde's comprehensive work.

Imitations spread in concentric circles. The first general law is that imitations expand in geometrical progression. From the center, which in society is the inventor, imitations tend to spread in all directions just as the ripples started by a stone dropped into the water extend in concentric circles. And just as the ripples diminish in size as they recede, until they gradually fade away in the distance, so imitations become weaker the farther removed they are from the originator of the idea. And in general it may be said also that imitations proceed more rapidly the denser the medium through which they pass. In other words, they spread more easily where populations are dense and means of communication are excellent. This result would naturally follow from the nature of suggestion, because ideas spread through contact, and contacts multiply with density of

population. This law of course presents a tendency only. In actually existing social relations many influences may produce modifications. In reality imitations spread in the manner described only as the material of a group is socialized, that is, as individuals are wholly imitative. In so far as any society includes social judges, new ideas will be subject to serious criticisms and discussions, which will delay, if not entirely stop, their transmission, so that imitations actually proceed at irregular rates of speed according to the character of the social units.

A second condition necessary to the free spread of ideas in geometrical progression is that they shall encounter no opposing ideas. If a belief, or an invention, in the course of expansion comes in contact with another belief or invention inconsistent with it, a struggle will ensue. The new idea may conquer the old, or it may be repulsed; but in any case its progress is delayed. The existence of contradictory or rival ideas is a very important factor in regulating the spread of imitations. In a dense medium conflicting ideas are often so numerous as to counterbalance the advantage of the denser medium. Often a fad, such as a song or a slang expression, will spread more rapidly and be adopted more generally in a small village than in a large city, simply because it meets less opposition in rival fads. Ideas and inventions are more numerous in dense populations, and therefore city life is more diversified than country life, notwithstanding the tendency of imitation to spread more rapidly as the medium is dense.

Although an idea sometimes encounters other ideas which are inconsistent with it and therefore modify or counteract it, it may also meet ideas which confirm and strengthen it. A new scientific principle may proceed tentatively and hesitatingly at first; but it may in time encounter ideas or facts which strengthen, or verify, it and hasten thereby its adoption. Coöperating forces are sometimes sufficient to reverse the law of the diminishing intensity of imitation so that imitations strengthen instead of weaken as they pass farther from their origin. The reason is that in the new environment contradictory beliefs may be fewer or social conditions may be particularly favorable to the adoption of the imitation. For example, a scientific fact may be

adopted more readily at a point distant from its origin, because, perhaps, religious beliefs are more tolerant or political or economic conditions are more favorable to its reception. The theory of the single tax has had more influence in England than in the United States, because conditions of landholding there were favorable to its adoption.

Imitations are altered in passing into new environments. A second general law of the spread of imitations is that they are modified as they pass from one society to another. This is due both to individual and to social differences existing between nationalities. Individuals differ sufficiently from one another so that imitations, except perhaps those of the simplest acts, are never absolute reproductions. The artist never reproduces exactly the master whom he copies. Methods of the production and the exchange of commodities differ somewhat as they are copied by dissimilar personalities. This principle holds even between individuals of the same race; but it is much more marked between individuals of different races.

When the thing imitated is a social institution instead of an individual action, modifications occur because a new institution has to conform to other institutions or to preëxisting modes of thought. Methods of military defence may be copied in a general way by one nation from another; but they always have to be modified to conform to the physical contour of the new country, and they must be adapted also to the size of the population and to its resources. When a foreign religion is adopted by a people it is necessarily altered in many details, because religion is merely one part of the total intellectual life of a society and must be adapted to other phases of thought. One social institution can never be separated from others but is merely a part of the whole network of social organization. This principle of modifications of imitations in passing from one environment to another has practically no exceptions. The modifications themselves vary, first, with the extent of the individual and social differences, and secondly, with the degree of dependence which the thing imitated has upon preëxisting institutions and habits of thought.

The foregoing discussion shows that imitation is a powerful

force in the production of social uniformities, but that its action is continually checked by the force of opposition. The utility of oppositions and their relationship to imitations is the next subject for consideration.

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CHAPTER XXVII

OPPOSITIONS

The Meaning of Opposition. In the preceding chapter imitation has been represented as the chief unifying agent in society. By some authors it is thought to be the fundamental social process. However, imitation is not the only psycho-social process, but is accompanied by another which may be regarded as its supplement and which even plays a part in producing social solidarity, that is, opposition.

Before discussing the functions of opposition, the comprehensive meaning of the term should be explained. There are many grades of oppositions. They vary in intensity all the way from actual conflict to good-natured rivalry. Opposition does not necessarily imply the desire to injure nor even the existence of ill feeling. It may take the form of mere competition for public approval and support, as is the case with educational institutions; or it may be merely competition for effectiveness in public service, as is possible with philanthropic institutions. Two groups may coöperate for the public welfare, and entertain no ideas of selfish gain; but they may still strive to outdo each other in the amount of work accomplished or in the efficiency of their methods. In fact, wherever the spirit of rivalry is lacking it is a sign that members of a group have lost their group consciousness and lines of demarcation have become obliterated. It is doubtful if group consciousness ever exists without some degree of opposition to other groups. Opposition marks the psychological periphery of groups. When opposition is absent, it means that group limits have not been reached.

Inasmuch as the work of the world is accomplished not by purely individual effort but by coöperation, the social work of the individual depends not alone upon his inherited talents but also upon his coöperative abilities and his group loyalties.

The acceptance of this principle does not imply, however, that all group loyalties and all group oppositions are equally commendatory. In general it may be said that ability to coöperate with a large group, rather than a small one, indicates a higher grade of socialization. Recognition of the claims of the larger group indicates broader sympathies and a better understanding of the total social process. The individual who cannot coöperate at all is afflicted with an enlarged ego. And the individual who identifies himself strongly with a small group and exhibits an excessive spirit of rivalry with other groups is usually showing a degree of self-interest only slightly inferior to the one who does not coöperate at all. He is merely expressing his egoism through the medium of the group; and in choosing a small group he discloses his own limited range of sympathies.

The Relationship of Imitation and Opposition. The principle governing the relationship of imitation and opposition may be stated in broad terms as follows: In so far as persons feel themselves to be similar, or to have similar interests, they imitate; but as they feel themselves dissimilar, and possess dissimilar interests, their imitations decline and oppositions arise. Thus, although imitation is an important agent in producing uniformities, it is not their original cause. Some degree of similarity precedes imitation, and this original similarity is physiological, — the product of heredity. Imitation therefore is both a cause and a result of similarity. It proceeds from an original physical similarity and produces a secondary social similarity.

It has just been said that as oppositions arise imitations decline, but they do not entirely disappear. Competing business firms, or even armies in deadly combat, imitate each other. They carefully copy all the equipment and adopt all the methods of their rivals which they think will be advantageous to them; but they do so on the basis of their resemblances as similar groups, acting under similar conditions. Nations at war do not imitate one another in those things which represent national traits and products. In fact they strongly repudiate all enemy products which do not contribute to their own success. The principle involved is that as oppositions arise non-rational forms

of imitation decline. Rational imitations continue and may even increase out of the necessities of the conflict.

Society may be looked upon therefore as made up of innumerable social circles. Each circle is composed of persons who in some particular feel themselves to be alike, and because of this similarity organize groups, such as social, professional, or religious groups. Within the group exists imitation and unity, but between groups, organized for the same general purpose, there is some degree of opposition or rivalry. Opposition between groups may not be formidable, nor even always conscious; but either openly or in some veiled form, it exists wherever there is a break in social solidarity. Absolute indifference is comparatively rare. Opposition, either between groups or between individuals, however, may include only one phase of an individual's activity or one part of his personality. An individual belongs to many groups, and he may admire and imitate another individual in one set of activities, connected perhaps with professional work, and oppose him in another, such as political activities.

This representation of imitations as occurring within groups and oppositions between groups is only a general conception of the dominant tendencies where imitations and oppositions are most obvious. The two processes are not in fact wholly distinct. Within a group there may exist a considerable amount of individual rivalry, though if opposition became too strong a group would split apart. Similarly between groups there may be a considerable amount of admiration and imitation, but opposition must still be present or else the groups would merge. This principle applies of course to groups organized for similar purposes, and there may be a few exceptions. Occasionally organizations do not combine, even when oppositions cease, owing to the complexities of organization. And occasionally large size is detrimental, and small non-competitive organizations may be more efficient. But even in such cases some definite form of coöperation is likely to be arranged unless considerable opposition still persists.

In all the psychological processes the starting point is not the group but the individual; and the individual in each of his human contacts feels both admirations and aversions, which lead

directly to imitations and to oppositions, and eventually to social unity or to social conflict. In one case the affiliation may seem to be wholly one of admiration, so that opposition hardly rises to consciousness; in another the opposition may seem to be so general as to include the entire personality. But these would be extremes of possible relationships. In the majority of social contacts both attractions and repulsions are consciously present, though in varying degrees. We might assume therefore that, if physical conditions permitted, the individual would so far as possible arrange his social life to make association most intimate with those he admired the most, and to associate as little as possible with those who repelled him. That is, the relationships between the individual and those nearest him, with whom associations were most intense, would show the maximum of attraction and the minimum of repulsion. Farther away from the individual, if we may use distance in the social instead of in the physical sense, attractions would decrease and oppositions increase until the total feeling of opposition would be stronger than the total feeling of attraction. At that point associations would normally cease. Beyond that point there might still exist considerable ground for admiration but such a feeling would be overbalanced to a greater and greater extent by repulsions, until finally the repulsions would reach a maximum and the attractions would almost disappear. Such is the real relationship between attractions and oppositions, whether the individual or the group be taken as the starting point.

The Social Value of Opposition. *Opposition is defensive.* In the preceding discussion oppositions have been represented as setting a limit to imitations, the two varying inversely. The evident conclusion to be drawn from this interdependence would be that oppositions check and weaken socialization, but from another point of view it will appear that they also serve to facilitate socialization. When one first meets a stranger, or when one comes in contact with a new idea, it is probable that the immediate reaction includes some degree of opposition. This opposition may be based on fear, or a closely allied emotion, and the utility of the reaction is self-preservation. Just as we fight or flee from those things which may injure us

physically, so we reject new ideas which may be disturbing to our mental life, and we repel strangers who may not be harmonious or who may have a tendency to disrupt our social group. Opposition from the psychological point of view then means the preservation of that mental and social equipment which has been so painfully acquired. Our ideas and principles may not be wholly correct, our personal qualities may be susceptible of improvement, and our social relations may be far from ideal; but they have been acquired with difficulty and, whether good or bad, they have become a part of us and instinctively we protect them from contamination or destruction.

The first function of opposition then is defensive. Opposition serves to protect social and mental products and therefore it conserves that degree of socialization which has been already attained. While opposition does not absolutely preclude the entrance of the new, it serves to check it until its nature is understood. If the new proves to be useful or even harmless, the barriers are thrown down; but if it is destructive to the old the conflict continues until one or the other is destroyed, or until some basis of adjustment is reached.

Opposition helps to adjust incompatible elements. The struggle of opposing forces in the social group may be so strong as to impede or even prevent social relations unless some basis of adjustment is reached. An adjustment between antagonistic elements, sufficient to make social life tolerable, is sometimes obtained by the permanent use of oppositions in some form less intense than that of conflict. In some of these cases, however, two ideas apparently opposed, upon further examination may be found to be consistent, whereupon conflict automatically ceases. Of such a type is adjustment between scientific and religious beliefs. Yet in other cases, ideas which are destructive to old beliefs, and subversive perhaps to the social order, do force their way in. In fact this is constantly the situation, for no society is ever made up of absolutely harmonious elements. But here also opposition still exerts a protective function. It attempts to keep the old ideas from being injured or destroyed and permits social life to continue even where the hostile elements must exist side by side. A state which cannot keep

anarchistic views wholly outside its boundaries can avoid disruption by continual suppression. An established religion may not be able to eliminate all heresies, but it may retain its position and its purity by continual opposition to alien doctrines. What is true of ideas or principles is also true of heterogeneous individuals or groups in a society. Ordinarily different races may exist in the same society only by preserving a continual attitude of antagonism. Opposition serves to preserve racial identity and at the same time permits social relationships. To be sure, a society composed of heterogeneous elements is never so strong or so unified as it would be if opposition did not exist; but if opposition were relaxed one or both races would lose their identity. Opposition is continued as a means of race preservation. Two races which are in the position of conquerors and conquered, or of superiors and inferiors, find a possible adjustment of necessary social relations by assuming an attitude of mutual aversion. The position of each race or caste is clearly defined. The mutual understanding permits contacts where necessary and maintains isolation where that is possible. Furthermore the partial isolation resulting from the sentiment of aversion offers a safety valve to the feelings. If there were no reservations to social intimacies open conflict would be a constant menace and social life would be impossible. In the southern part of the United States social life between negroes and whites is comparatively peaceful, because racial antagonisms have gradually defined the relative positions of the two races. As long as they respect one another's rights social life runs smoothly. Open conflict results only when one race or the other fails to observe the unwritten rule, or when, being discontented with the established position, one or the other attempts to force a new basis of adjustment. In the northern states, however, no social adjustments between the races have been worked out. Peaceful relations therefore require a much greater degree of segregation than is necessary in the south. In the north when association chances to become more intimate, it is more likely to break out into open conflict, since it occurs without regulation or reservation.

It appears therefore that when antagonistic elements are

present in society, opposition causes a certain adjustment between them and permits a species of social life to continue while the integrity of the opposing elements is preserved. The alternatives are either complete segregation or elimination of one of the groups.

Opposition promotes group unity. A third effect of opposition is that it promotes centralization or unity within opposing groups, thus increasing the degree of socialization while setting limits to the area of socialization. Just as an individual must concentrate his attention and his energies in combat, so a group must centralize and organize all its resources for a conflict. Disloyalty within a group not only deprives the group of a part of its forces, but hinders the remainder in the performance of their duties. In a normal group minor differences disappear in the face of danger from without. Whenever a group is so divided that it cannot temporarily forget its disagreements, it presents only feeble resistance to outside attacks. Unless a people can organize they cannot engage effectively in conflict. Primitive peoples who have not learned to subject themselves to the discipline of leadership are not warlike; and conversely the mere threat of war has often been the incentive to the organization of small groups into larger groups. Many federations and alliances were originally merely defensive organizations, and they possessed practically no authority except for war purposes. Indeed, warfare is so commonly a cause of unity that alliances between states are naturally looked upon with suspicion by those outside, even though no cause of war seems imminent.

Conflict between groups requires the greatest possible unity within groups. In times of danger the suppression of disloyalty and the elimination of all views of a compromising or pacific nature is regarded as essential, for intensity of hate facilitates organization and increases ferocity in attack. Peace permits divergent views, discussion, progress. But war calls for centralization, unity, and unquestioned obedience. For this reason many societies have consciously maintained a national sentiment of opposition towards rivals, fearing that any relaxation in that attitude would be followed by disintegration. The Taborites, a

communistic sect of the middle ages, rebuffed all offers of compromise and peace on the part of the church, and thereby preserved their unity and fighting power. The older socialists maintained a consistent attitude of uncompromising opposition to the government, and by so doing they retained unity and strength of organization and retarded the process of disintegration. As long as opposition was emphasized as their chief aim little discussion took place within the ranks. All were loyal and orthodox. Divergence of views and reconstruction of theory came only when they were strong enough to be sure of their continued existence.

Strength of Oppositions. Oppositions vary greatly both in intensity and in their results, all the way from mere rivalries which may be stimulating, to open conflicts which are destructive, for reasons depending partly on the nature of the questions at issue, and partly on the character of the individuals or groups in conflict.

Depends upon the importance of the question at issue. The intensity of oppositions varies normally with the importance of the controversy to the group. If the question at issue is looked upon as a fundamental one, so that a change would alter the composition of the group or even threaten its existence, all available energy will be marshalled for the conflict. If the question at issue is not vital to the group, or if the differences are not absolutely irreconcilable, resistance will be less intense, and a compromise will be effected before the group is seriously embarrassed.

The group estimate of the importance of a particular subject varies however under different circumstances, and is noticeably dependent upon the complexity of the social organization. In a simple social organization, a particular belief or institution may assume exaggerated importance, because interests may be so few that attention easily becomes concentrated upon one of them. On the other hand the importance ascribed to it may not be entirely imaginary, for a society with few institutions may of course be more seriously affected by a single change than a society which has reached a higher stage of differentiation and organization. Furthermore complicated societies are

usually more plastic than simple societies and they can adjust themselves more easily to changes in the social organization. They contain more elements that are variable and offer less resistance to modifications in the social structure. In the Middle Ages, religious questions were all-important, due partly to the simplicity of social life and partly to the character of the mental life, and so conflicts over religious doctrines were much more serious than they would be now. The lesser degree of importance attached to religious differences in modern times cannot be ascribed so much to an absolute decline of interest in religion, as to a relative decline due to the increased complexity of total interests. Varieties in religious beliefs no longer arouse such strong antagonisms because they no longer threaten the social structure nor do they greatly modify social relations.

In modern times differences in economic beliefs, especially those concerning the relation of labor and capital, arouse much more intense feeling because interests are centered to a greater extent in economic activities; and there is a realization that changes in the economic organization of society would affect not only individuals but whole classes, and indeed might even alter the entire social organization. So while differences in religious beliefs no longer arouse emotions in the majority, disagreements over economic questions stir up strong antagonisms, because changes in economic organization may endanger social order and stability. And the more imminent the possibility of change is felt to be, the more intense will be the antagonisms.

Variations in group emphasis are obvious where simple and complex organizations exist side by side. In small villages disagreements among church members, or differences of opinion over a school policy will arouse more interest and create warmer feeling than the same problems in a city. Where interests are few the importance of any one of them is bound to be magnified. It is for this reason that gossip is a characteristic of the small group, gossip being a symptom of narrow interests within the group and of poverty of ideas in the individual.

In advanced as well as in simple societies, however, interests vary in real importance, and those which are felt to be of

greatest moment will always arouse the most intense antagonisms. But in any case it is the estimated rather than the actual importance of the question which counts, and for various reasons the weight of a particular subject in a social group may be overestimated either temporarily or permanently.

Depends upon intensity of association. A second principle is that oppositions are often stronger between persons having the greatest community of interest than between those having little in common. The reason is that intense and continuous association presupposes similarity. When, therefore, differences occur, they are much more destructive to the social relation. In the more casual social relationships disagreements may arise without endangering social life, and hence they do not arouse any intensity of opposition. Family quarrels and lovers' quarrels may become very intense because these relationships imply fundamental harmony, and small differences are therefore more irritating and disruptive than those occurring between more casual acquaintances. According to the same general principle a quarrel in a small village may be much more intense and lasting than one over the same subject in a large city. In a small community personal contacts in all departments of social life are more frequently with the same individuals. Therefore a quarrel which may start in one organization, the church for example, will extend to trade, to politics, and to social relations, because the same persons opposed in the one organization encounter one another in those other departments of life; so that the controversy tends to gather strength and to cause a general alignment of the whole population on one side or the other. In a city, on the other hand, a disagreement starting in a church may end there, because the particular individuals concerned may encounter each other only in that one social organization. In that case the opposition will be confined to one phase only of the social life of the individual, and will take up only a part of his attention; and opposition will tend to die out as time passes.

In this principle is to be found one explanation of those difficulties which have constantly been encountered in keeping the alliance close between England and the United States. The

two peoples are so similar that minor differences attract attention and assume unmerited importance; and oppositions are stronger than they would be between peoples more divergent in character and in mode of life.

Depends upon degree of opposition aroused. Finally, oppositions strengthen as they encounter opposition, but where no resistance is met antagonism is dissipated. No strong spirit of antagonism can be maintained against passive submission any more than physical force can be exerted against a continually yielding object. Hate is a self-preservative instinct and is normally active against anyone who inflicts an injury. It ceases to function against a harmless person, and it cannot even be aroused in the face of genial friendly acts. The basic principle is then that opposition feeds on resistance and dies out with non-resistance, and this is due to the fact that oppositions are preservative in their nature. If a danger encountered is great, oppositions strengthen; but when the danger declines the forces of defence are relaxed.

The first application of this principle is that in all cases in which oppositions are desirable, that is, where they are stimulating, effort should be met with equal effort; but wherever oppositions are pernicious and destructive they should not be stimulated by resistance, but should be replaced by coöperation. In athletic contests good sporting spirit requires that the opponents should be evenly matched in order that there may be a true contest. When one opponent is decidedly inferior neither is stirred to his utmost endeavor. Achievement through competition or emulation requires, in the first place, fair conditions, by which is meant such regulations as will permit the desired qualities to be freely exercised; and, in the second place, approximate equality between the competitors, so that each side will be stimulated to maximum effort.

The principle of stimulating effort by opposition is obvious enough in cases of rivalry and emulation; but the principle of non-resistance in a case of destructive conflict is not so easily stated, partly because the dividing line itself between stimulating and destructive conflict is not always evident, and partly because there are differences in the nature of conflicts, due to

the different motives prompting them. To understand the reactions in the severer forms of conflicts one must distinguish between defensive and offensive struggles, because the former are an expression of the instinct of self-preservation, while the latter are crude manifestations of the desire for self-assertion taking the form of aggrandizement at the expense of another. Resistance for self-preservation normally grows in proportion to the danger encountered, because self-preservation is a basic instinct. But force exercised for aggression does not grow uniformly as opposition increases, because self-aggrandizement is not so vital a need as self-preservation and hence aggression becomes more cautious if failure threatens. One does not undergo the same sacrifice for self-exaltation that one will for self-preservation or for the vindication of a just principle. For this reason a bully may often be cowed by determined resistance. And in the case of war the populace is always made to feel that it is in danger and on the defensive, for the rank and file will not undergo great sacrifices for aggression alone, even though they may acquiesce in a war of conquest if the costs are to be borne by the enemy. Oppositions for purposes of aggrandizement, therefore, do not increase directly with resistance. They do increase with slight resistance, for that is not dangerous and it stimulates effort; but they decline with formidable resistance, for no possible gains are worth the risk of defeat. Therefore to restrain a bully, whether an individual or a nation, fearlessness and determination are essential, for feeble opposition or vacillation merely serves to incite the aggressor.

Such in brief is the character of opposition when it encounters opposition. But the analysis does not determine the question, so often argued, of the expediency of resistance, or of non-resistance, to the aggression of evil forces. Should evil be kept in check by determined resistance, or should it be unresisted in the hope that it will die out? Absolute non-resistance to evil would be absurd and would not gain the end sought. It would avoid conflict, in so far as that is desirable; but in the end, without struggle evil would prove overwhelming. Conflict between good and evil is universal. It begins in the individual mind and extends throughout social life. In the individual him-

self absolute non-resistance would mean acceptance of the evil principle and in society it would mean the decay of healthy institutions and customs. The presence of evil does not call for passivity or negligence. On the contrary it requires strenuous action. But it is the kind of opposition employed which is of vital concern. Inasmuch as evil is energy misdirected or misunderstood, reform implies a readjustment of forces and a higher degree of coöperation. And this end is never accomplished by retaliation. Resistance in kind, "an eye for an eye and a tooth for a tooth," merely adds one evil to another and also increases the area and intensity of the enmity. In their beginnings, hate and strife are strengthened by resistance and devitalized by conciliation and sympathy. But inasmuch as reprisals satisfy a primitive instinct of vengeance, and as restraint under aggression is humiliating, non-resistance becomes one phase of the sacrifice of the individual to the higher interests of the group. Methods of retaliation and of revenge in the treatment of criminals fail to reform the spirit of the delinquents and only aggravate their feeling of hostility towards society. This does not mean of course that force should never be used to check evil influences. Forcible restraint is often a preliminary measure to the reform of misguided energy; but such restraint should never be vindictive and it should be regarded as a means and not as an end. Force may repress but it does not regenerate evil. In many cases, however, attempts at forcible suppression are dangerous and defer rather than hasten harmony in the social order. Higher adjustment may frequently, perhaps usually, be obtained by education more speedily than it would be if force were employed as the intermediary agent. At any rate this phase of the subject is the one deserving sharp emphasis in modern times. The suppression of evil by force does not need to be urged, for too often it seems only to enhance an individual's self-assertiveness and self-complacency. The modern mania for reform by force of law is merely a new expression of the old primitive instinct of the chase, tinged with modernism and respectability through the use of laws as the weapons of restraint. It is doubtful if conflict with its resulting suppressions is ever a regenerative force. The milder forms

of opposition, rivalry and competition, are progressive in that they are stimulating; but the grosser forms increase antagonism and render coöperation more difficult.

The Character of Oppositions is Altered in Two Ways. From the nature and functions of oppositions, it is clear that the forces of evolution will never completely eliminate this factor, though they will modify it by making it less of a destructive and more of a constructive force. Oppositions appear to be undergoing modifications in two ways: first, their intensity is diminishing, open hostility gradually giving way to friendly rivalry; and, secondly, their object is changing, being diverted from persons to principles.

The lessening intensity of oppositions indicates a greater degree of socialization. Antagonisms which would weaken or disrupt groups are gradually being modified, permitting greater unity within groups or hastening the amalgamation of competing groups into larger units. Even where oppositions are not entirely eliminated, they tend to become less uncompromising, and while feeling may still be bitter, on the whole the trend is towards that friendly competition which stimulates unity and progress rather than disruption in groups.

The transference of the object of conflict from persons to principles indicates an increasing clarity of perception as to the cause of differences and facilitates the final adjustment of opposing forces. No true incompatibility exists between persons, but only between ideas and principles. To antagonize the individual for the purpose of settling a divergence of views is like avoiding ill tidings by executing the bearer of them. It is the principle and not the person that must be modified or suppressed. Sometimes, to be sure, the difference in principle is so fundamental and complete as to seem to include the whole personality, so that the antagonism is general; but it is never entirely so. Although occasionally restraint of the individual himself may be essential in the control of destructive influences, it is always a temporary expedient and does not achieve a final adjustment. To the degree that oppositions find their true objective in principles, these principles can be perfected through discussion and the process will promote higher adjustments and more complete unity.

This change in the character of oppositions may be seen in almost every department of life. In politics it was formerly the custom to attack vigorously the personalities of opposing candidates for office; but this custom is gradually being abandoned, the struggle now being confined more closely to the principles involved, with a consequent improvement in the tone of political campaigns. Even the socialists no longer interpret class conflict as applying to individuals of opposing classes, but rather to the principles exemplified by each class. The more intelligent socialists regard individuals as mere irresponsible victims of the conditions which gave rise to classes. Discussions on scientific propositions are ordinarily conducted on the highest plane of all. Although conflict among competing theories may be vigorous it remains almost wholly impersonal. It is rarely diverted from the principles to the personalities of the advocates of the theories. The conclusion is that, as the character of oppositions changes from conflict of individuals to rivalries of principles, they become attenuated and refined in their nature and more progressive and constructive in their action.

Reasons for the Change in the Nature of Oppositions. The milder forms of opposition are so much more favorable to progress than the cruder and more violent forms that it will be worth while to review the conditions which modify oppositions, though they have for the most part already been implied in the previous discussion. Original cause and effect in social relations are not always easily distinguishable because so many forces are continually interacting, but the most important influences in this case are apparent.

The increasing size of the group has been represented as the effect of the decline in the intensity of opposition; and this is necessarily the case unless the integration has been forced. But larger size in the group is itself favorable to the weaker forms of opposition, and for two reasons. First, in the large group individuals are farther removed from their rivals and therefore feel less intensely the enmity of opponents or the imminence of danger. And, secondly, because a large group absorbs the individual more completely than does a small group. Its diversity of interests offers much wider scope for his activities, so that

his attention is less concentrated on the activities of other groups. He feels himself less interfered with than he would if he belonged to a smaller group. This multiplicity of interests causes the individual to be less strongly concentrated on any one phase of social life, and therefore rivalries are carried on with less bitterness than they would be if they assumed greater importance. In case of intense rivalry between a large group and a small one, members of the small group always feel the antagonism much more keenly than do those of the large group. Sometimes the latter are not even cognizant of the intensity of feeling which exists in the small group. And when the attitude of the smaller rival is perceived it comes as a surprise and is not always understood. The people of the United States have unfortunately permitted enmities of considerable intensity to smoulder in small nations without being conscious of them, simply because they did not feel the restrictions of competition which had become oppressive to weaker rivals.

Furthermore if the larger society has also the denser population, the increased associations resulting will tend to produce stronger feelings of equality. And as the recognition of the importance of others grows, and as the self-feeling relatively declines, oppositions between individuals and groups of individuals will tend to soften and unity will be promoted.

Finally, the effects of increasing division of labor, discussed in a previous chapter, should be mentioned in this connection. Oppositions arise because of seeming diversities of interest; and division of labor is a factor in harmonizing interests, because it increases interdependence and turns the struggle to diverse ends. While division of labor is, in the first place, primarily a result of struggle, in its perfection it serves to attenuate conflict, because it makes the interference of individuals less direct. Even international or territorial division of labor, while not removing all causes of group conflict, must be recognized as a powerful force in the promotion of unity.

The conditions favoring the decline of extreme forms of opposition, therefore, naturally appear as the reverse side of those conditions which stimulate integration and division of labor. As the material side of progress includes increasing group inte-

grations and differentiations, so the psychological side involves a wider conception of individual values and a decline in the intensity of social antagonisms. The social conditions and the psychological reactions are closely related. Declining opposition, however, does not imply more exact imitation. On the contrary imitation becomes more rational, permitting a larger degree of variation. In early phases of social life the tendency was for small groups to show great uniformity through unvarying imitation and to develop uncompromising opposition to other groups. Progress brings less extreme oppositions, but also less perfect repetitions. Societies become more plastic in their organization as the units become more harmonious.

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PART V
CULTURAL FORCES

CHAPTER XXVIII

MORALITY

Morality Used in Two Senses. Morality means right conduct; but right conduct is not easily defined. Morality is used in two senses, absolute and relative. In the first sense morality is that form of conduct which will lead to the highest good. This good may be defined variously according to the point of view. Following the principles used in this volume the good may be expressed in terms of the ideal, which was found to be the maximum of life. Morality therefore in the absolute sense is that form of conduct which will produce the maximum of life.

In the relative sense morality refers to that conduct which is definitely approved by a particular group. From this point of view morality is relative because standards change with group experience. In the absolute sense morality is supposed to be unvarying because there can be only one best method of acting to produce the highest development. It is doubtful, however, if this conception of morality is tenable. When we assume an absolute standard of morals we are unconsciously accepting our own highest standard and condemning the standards held by people of supposedly lower grades of development. We look upon their methods as defective, and therefore not moral in the highest sense of the term. But can we suppose that our own standards are absolutely the best? Is it not possible that in future ages standards will be further perfected so that accepted codes of conduct of the present age will be looked upon as inferior and therefore not completely moral? If this is the right attitude, absolute morality would mean an ideal form of conduct as yet unknown and unattained. But there is a still more serious objection to the conception of morality as absolute. The very principle of the evolution of individuals and of social

relations implies that no one standard is best for all stages of development; or at least that there is no one standard of action which may be successfully applied in all stages of development. Standards concerned with some of the fundamental social relations, such as respect for life and property, may seem to be unvarying; but this is because the relations of men to one another have always been similar, and hence to kill or to steal has always been looked upon as evil. Yet even these simple standards have varied. The particular individuals whom it has been wrong to kill, and the kind of property which has been entitled to respect, have been classed differently by different peoples. And in the more complicated relations, such as the form of the family and the relations of classes, moral ideals show much greater diversity from one period to another. A conception of absolute morality therefore seems to be impractical: first, because at best it must be conceived of as an unknown ideal; and, secondly, because if the standard were determined it is highly improbable that it would be found to be applicable to all peoples. If morality be regarded then as an objective thing which lends itself to scientific study, it must be conceived of in the second sense, as that conduct which is recognized as best by a particular people at a given time. Morality is a social product which is interlaced with other products and has developed along with them.

The Evolution of Moral Codes. Morality as a subject for the sociologist presents two aspects: on the one side, the nature and evolution of moral codes or standards of conduct; and, on the other side, the observance of these codes, or moral attainment.

Moral standards in the relative sense had their origin in group experience. The satisfaction of man's desires has depended upon coöperation in the performance of certain acts; and the first problem of primitive man was concerned with the successful performance of these acts without injury to the group. At first the formation of precedent was difficult, but as soon as any method seemed to produce the results desired, it was repeated, habits were formed, and what Sumner calls the "folkways" were built up. The success of early customs was measured not merely

by the material results obtained, but by the apparent approval or disapproval of spirits, and by the character of any phenomena which might accompany an act. If, for instance, the marriage of relatives, or the performance of a religious ceremony in a particular way, was followed by sickness or death in the tribe, that method appeared to be displeasing to the gods and was not likely to be repeated. But if no harmful manifestations followed an act, it was considered successful; and, even if later similar performances were followed by injuries, the method was not immediately abandoned but the act was performed with more punctilious regard for the proper observance of details. In this way rigid observance of precedent came to be of the utmost importance.

The building up of folkways had in itself no moral significance. They merely marked the beginnings of methodical acts. However, in time it was perceived that some customs more than others conduced to the welfare of the group. Then mere formation of custom was no longer the need. Several modes of action were possible; and the social advantage at this point lay in making a choice between the possibilities on a basis of utility, and then in making customary that form of conduct which seemed most useful. At this point the folkways gave birth to the mores, namely, customs which were recognized as having definite social utility. It must not be supposed, however, that there was in all cases any high perception of social utility in the choice of the mores. Some customs were obviously necessary, others were of negative value, or even harmful in the long run, and others were good, but not the best. Nevertheless, in following the mores an idea of group welfare was present; and it was in this second stage, therefore, that morality in the true sense evolved. But a third stage was reached when, either by the contributions of several persons, or by the work of one person of strong intuitive power, these experiences were definitely formulated into a moral code or law. Thus morality has been the expression of the best in the experiences of a people.

Not all socially desirable modes of action need be embodied into a code. Some harmonize with individual instincts and need no enforcement, while others bring on the conflict of

interests between individual instinct and group welfare, which is inevitable and which necessitates restraint of individual freedom. That individuals shall provide themselves with food and protect their lives are the first requisites of group welfare; but these acts correspond to strong individual instincts, and therefore they are not a part of the moral code. The moral law is not an exhortation to follow useful instincts, but rather a restraining force upon the actions of individuals when they first come into conflict with social interests. At first therefore moral law was a series of negations or restrictions, though later positive action was enjoined as the need for active coöperation was more clearly perceived.

Methods of Social Control are Distinct from the Moral Code. A developed moral code then was a set of rules for adapting individual conduct to social needs; that is, morality was, and still is, an attempt to socialize the individual. Taking individual instincts and desires as the point of departure, the moral law circumscribes and restrains individual action in the interests of society. But while morality sets up rules, it provides no active form of control unless it be the appeal to reason. Moral precepts may be so simple and clear that they impress the individual with their reasonableness, and therefore he conforms to them voluntarily. But ordinarily control through reason does not suffice and society requires more positive agencies to make the individual conform to social needs; and it has found them in the restraints of law, public opinion, and religion. When the precepts of morality are followed it is usually because of one of these forces, rather than because of the mere perception of the undesirable consequences of anti-social acts.

In discussing the provinces of these different methods of control, it will be convenient to distinguish three kinds or degrees of morality. The first consists of those fundamental principles of conduct recognized by the majority as essential to the smooth ordering of the social relations, and these are enforced through the agency of law. The second includes forms of conduct generally recognized as desirable but which from their nature are not easily amenable to law, and the sanction for this class of morals is public opinion. The third class consists

of those refinements of morality which are still in the process of acceptance and adoption. It includes those virtues which are practised and taught by leaders of acute moral perception, but which, though they may be approved, are not recognized by the majority as really indispensable to social welfare. The special sanction for this class of morals is religion. However, the force of religion as a means of control is not limited to the third class of acts. Religion enjoins all forms of morality, but it alone requires the higher forms. In other words, the more refined forms of social control include the lower grades of morality; but the cruder forms of control do not cover the higher grades of morality. Religion and public opinion, as well as law, forbid murder, but the law does not punish selfishness, and public opinion does not require self-sacrifice.

The several forms of social control differ greatly in their character and also in their efficiency. Law is control by means of force. This method is crude because it judges largely by externals and necessarily makes rough classifications of crimes. It is uncertain, because many escape its action, and because it is administered with varying degrees of severity by different tribunals and at different times. Public opinion as a control is inaccurate in its enforcement of morals, because it is prone to judge of externals rather than of motives. In the case of an individual who is successful and who conforms to social requirements in manners and customs, society may condone vices if they are not too aggressive. Religion as a control appeals entirely to a sense of duty. It does not therefore mistake manners for virtues, but it is a force too subtle to appeal to all. Those who already have the inward impulse towards betterment respond to religion; those who are satisfied with their attainments are influenced by public opinion; those who ignore social standards but dread pain are restrained by law; and a few are rebellious to every form of social control.

Reasons for Changes in Moral Codes. If the foregoing description of the evolution of morality is correct, it is evident that morality is merely one of many social products; and, like other social institutions and customs, undergoes a progressive development and changes to harmonize with the evolution of other

institutions and products. Moral codes are usually promulgated with authority, ordinarily that of religion, and they have about them an air of absoluteness and finality which forbids modification with every minor change in social conditions. Ancient precepts, to be brought into accord with minor social changes, are usually at first merely reinterpreted and applied to the new conditions and beliefs. But in the long run new conditions and experiences must necessarily cause changes in or additions to moral rules, in order that individual moral conduct may be properly defined with reference to the new social requirements. These alterations in moral codes are sometimes explained by the advocates of the immutable character of moral law as mere differences in emphasis placed on the virtues, or as changes in the relative position and importance of moral precepts, rather than as modifications or enlargements of the moral code. Furthermore, in support of the claim that moral ideals do not change essentially, they also point out that fundamental evils, such as murder and dishonesty, have always been considered sins, and that moral knowledge has not increased with the ages. As has already been shown this claim is true of some of the simpler virtues, the reason being that human instincts are enduring and social relations have always necessitated the adjustment of individuals to one another. But customs such as polygamy, the sale of children, the keeping of slaves, the drinking of intoxicating liquors, have not always been considered vices. And actually our moral codes have been changed not merely by differences in interpretation of already existing moral rules but by the addition of subordinate rules to the original basic regulations of social life. These changes in moral codes are brought about through the influence of altered social conditions, requiring greater restraint on the part of the individual and more active coöperation for the social good.

The Problem of Moral Attainment. Much more difficult of solution is the second problem connected with the subject of morality, that is, the question of the character of the social conditions under which people realize their own moral standards, and the circumstances in which they seem to depart from them. It has already been said that the sanctions of moral conduct are

to be found in law, public opinion, and religion; and from this it might be concluded that a people would show a low degree of morality when one or more of these institutions were either undeveloped or decadent. And this theory furnishes a partial explanation of moral deterioration, though it fails to account for all forms of immorality. Sometimes immorality is considerable when repressive laws are adequate, when public opinion is active, and when religious institutions are elaborately developed. In such cases immorality seems to flourish because of a relaxation of moral sentiment resulting in failure to enforce the ordinary forms of social control; and the evil is traceable to disease of the social fabric, rather than to a defect in a particular institution. Laws have become dead letters, religion has become an empty form instead of a vital force, and public opinion has become apathetic towards unruly acts. The special sanction of morality, that is, the perception of cause and effect in conduct, seems sometimes to be strangely lacking; or, if perceived, is viewed with indifference.

A low stage of moral attainment therefore may result from unhealthy social conditions even when moral codes are highly developed. The blatant immoralities of the frontier, or of the mining town, may be traced to lack of organization in the institutions of social control. This situation may be due partly to lack of a sufficient period of time for their development, since social organizations are of slow growth, and partly to the absence of leaders in social organization and social order. In a new settlement economic gain is the object sought and men of action are the first to be attracted, although the lawless naturally drift to places where the law is weak. In such communities control is exercised summarily over disorderly conduct in those cases where the consequences are most evident and most galling, such as horse stealing or the disregard of mining claims; but vices which do not interfere immediately with the freedom of others are ignored, because social organization is undeveloped and social sentiment has not been aroused.

The immorality of an old society on the other hand, like that of ancient Rome, is traceable to an entirely different set of causes. Rome's institutions were well developed, its organiza-

tion was complete; but in the final analysis its weakness lay in the fact that it had ceased to have any ideal for which to struggle. Its early ideal had been conquest with the end in view of drawing sustenance from subject people. As long as this aim was still in the process of fulfilment the discipline and restraint necessary for its achievement were cultivated and enforced. But when the ideal had been achieved, when world conquest had become a reality, activity declined. Then exertion ceased; discipline was relaxed; and those early virtues, which were still taught by a few high-minded moralists, no longer seemed essential to the average citizen. Nothing was left for which to strive; self-indulgence was tolerated, and it led the way to vice and suicide.

Must we conclude then that morality is merely a characteristic of a society in its youth or middle age while activity is greatest, and that societies must inevitably enter on a period of senescence where effort subsides and discipline and self-restraint decline? Rather should the conclusion be that the moral forces of society are strong so long as a group is still striving towards the fulfilment of an ideal. Therefore social welfare demands that a society should have an ideal so broad and so complete that it can never be wholly attained, — one that will permit improvement but never a complete realization. Such an ideal for a society is to be found only within itself, — in the perfection of its social organization and the highest development of its social life. Only such an ideal will furnish an unfailing stimulus to uninterrupted effort and will continue to develop higher types of morality and self-sacrifice. The ideal of Rome, which lay outside herself, was objective and materialistic, and it was achievable. While it lasted it imposed restraints, but when it was realized no other worthy ideal replaced it. Morality then would appear to be, not so much an end in itself, as a means to the attainment of an ideal. A high degree of morality continuously maintained in a society is always the outward and manifest sign of an ideal in the life of a people that is a real and powerful force. The good is the ideal, and morality is the means of its attainment.

Another condition which causes a departure from moral

standards may be traced to a relaxation in the control of public opinion. If a society is in the process of disintegration in whole or in part, or if for any reason the forces of integration are not acting strongly on all its members, those who are isolated are likely to suffer moral deterioration. This principle is well illustrated in the case of immigrants to a new country, or of travelers in any foreign country. Not fully absorbed into the life of the new environment they are not reënforced morally by the accustomed social restraints. Constrained to alter many of their habits, they may at the same time relax their moral practices. Similar effects of freedom from restraint are particularly noticeable in the case of migrants from country to city. Leaving a small circle of intimate associates among whom every act is open and unreserved and submitted therefore to the direct force of social control, they are transferred to an environment where intimate acquaintances are not easily made, where social circles are so numerous and complicated that attachment to any one group yields only a fraction of a complete social life. In the complexities of this city life, the individual has a sense of isolation; and, lacking the friendly influence of intimates, his moral force is likely to weaken.

Another situation in which moral relaxation is apparent is to be found where societies are passing through periods of marked readjustment. At such times the old standards prove inadequate, but cannot immediately be replaced by new ones. Then those whose virtue has been based upon conformity to approved standards, instead of on any real perception of the true meaning of moral conduct, may lose all moral safeguards, simply because those principles or practices formerly accepted are incapable of adaptation to changed conditions. In the absence of an universally accepted code of morals individuals may break away from all restraint on conduct. For instance, when an old ideal of the marriage relation is subjected to criticism, and perhaps to reformation, sexual immorality is likely to increase, because in the transition from old standards to new no particular one is clearly defined and accepted. It is for this reason that occasional outbreaks of immorality occur in societies which are really progressing normally, but which are temporarily disorganized through the process of readjustment to new conditions.

Specific Forms of Morality. The discussion thus far has been confined to a general conception of morality. Now if specific forms of morality be considered separately, the principles determining the nature of moral standards and the forces affecting moral conduct will be made clearer. Virtues may be classified into four groups: those relating to individual development, or personal virtues; those relating to racial development, or family virtues; those relating to other individuals, or humanitarian virtues; and those relating to groups or to society as a whole, which may be termed social virtues. Each of these classes includes numerous specific virtues.

The Importance of Personal Morality. Personal morality consists in so ordering one's life as to ensure the highest physical and mental efficiency. It assumes a hygienic mode of living as an essential condition, and requires the development of courage, self-control, and other manly virtues. If the development of higher forms of life be accepted as the fundamental ideal for the individual, then personal morality must always be considered of paramount importance. Its attainment ensures not only individual development but maximum efficiency and length of life, and therefore superior social well-being. Notwithstanding its importance, personal morality is often ignored both as a form of morality and as a fundamental condition for the development of other kinds of morality, because we are accustomed to think of morality only in the narrow sense of the relations of individuals to one another. But just as the consciousness of personality arises partly within the individual and partly from a perception of other individualities, so morality arises partly out of the urge for individual development, and partly out of the recognition of a similar right for others. Therefore the highest development of all depends not alone on right social relations but on high individual attainment.

Personal morality in the young is likely to take the form of a desire for physical development and bodily perfection; while in the mature it is more manifest as a desire for increased efficiency. The youthful desire for physical development should be carefully stimulated, not only because it is good in itself, but because it is the early manifestation of a quality which should normally unfold into the complete life of virtue. The youth

who disregards physical well-being is not the one to develop mental efficiency or social morality. The cultivation of temperance and self-control, and the avoidance of slothfulness and self-indulgence, are the prerequisites in youth for the full realization of individual achievement and complete social adjustment. Morality is neither the suppression of the individual nor the grafting upon him of artificial characteristics; it is the normal expansion of native traits in a society made up of others with similar traits and similar needs.

Conditions Favorable to Personal Morality. Personal morality is most likely to appear in those societies possessing a strong conscious purpose, although the expression of this purpose may differ with the particular character of the social ideal. If the ideal is economic development, or military conquest, personal virtues essential to these ends will be idealized and generally cultivated. Even when an ideal is unworthy it may develop personal virtues of one kind or another. Patience, courage, and self-control may be strong in a society which is aggressively militaristic; but in that case they will decline when conquest is achieved. In a young society whose ideal demands for its attainment individual activity and physical energy, individual virtues are likely to be developed by its citizens in the course of ordinary pursuits. When a society has become older and more stable and its occupations have become sedentary, individual morality is likely to decline or at least to be held in lower esteem than are the humanitarian virtues. This decline, however, is largely an incident of the readjustment of morality to conditions in which social and mental traits have become relatively important. If a worthy ideal persists through the change, personal virtues will again assume prominence, expressed in a desire for well-rounded efficiency. Inasmuch as the physical basis for morality will not develop so spontaneously where occupations call for little physical activity, it seems natural and desirable for physical training and athletic contests to hold a place of prominence in the social life of an advanced society, stimulating deliberately the physical side of the virtuous life. The fact that personal morality is cultivated in the latter case, though it grows unconsciously in the former, is no proof that it is on that account less virile or enduring.

The assertion that a society must necessarily be militaristic to preserve the personal virtues is erroneous and probably insincere. The personal virtues resulting from militarism are cultivated at the expense of the humanitarian virtues; whereas, fortunately for society, these are not inconsistent, and personal morality may be developed in connection with virtues of the highest social value. Indeed, the two kinds of virtues are mutually stimulating and attain their highest development in harmonious relationship.

The Essentials of Sex Morality. Sex morality bears the same relation to the race that personal morality does to the individual. The need of keeping up a strong and vigorous race is evident; and the means of accomplishing it is by a healthy ancestry, and by intelligent and affectionate care of the young. Sexual morality therefore has for its object the production of a strong and healthy race; and the immediate means for attaining this object is the establishment of permanent and happy family circles. As a preliminary to the discussion of the effect of conduct on the family, the purpose of the family may be briefly restated as the proper mating of the two sexes and the provision of a favorable environment for the young. Those marriages which are necessarily restricted to the first purpose will not be considered here, for the conduct governing them belongs rather to personal than to racial morality.

The morality which safeguards normal family life is generally recognized to be of a twofold nature: that which keeps the relations pure, and that which keeps the group permanent. But in the last analysis both these forms have a similar origin. Permanence in the family relation depends first of all upon suitable sexual mating, therefore intelligence and care in the choosing of mates is a basic form of sexual morality. Hasty and thoughtless marriages are more immoral than some kinds of unchastity; although society, which is prone to judge of externals, is likely to be tolerant when the conventionalities of the marriage relation are observed. Next to the selection of suitable mates, the permanency of the family depends upon continued intensity of attraction between them; and this is achieved by early continence and fidelity after marriage. Enduring attraction between the

sexes requires the concentration of the entire sexual energy on a single person; and continued trifling with the sex attraction prevents such concentration of the personality. Exclusiveness in the sex relation, rather than restriction to one legal wife, is the fundamental characteristic of monogamy and is the basis of its superiority over polygamy.

All forms of sexual irregularity are detrimental to permanent family relations. Unfaithfulness after marriage indicates not the beginnings of rupture in the family but rather its completion. Irregular relations resulting in illegitimacy are obviously a wrong against the child, depriving him of a fair start in life. Sexual excesses in themselves belong primarily to the group of personal immoralities, but they may also interfere with the interests of the race. Usually there is harmony between personal and racial morality, for the superior man is usually the superior parent; but occasionally a real inconsistency does arise between them. When marriage is entered into between persons temperamentally unsuited, a continuance of the relation may impede favorable development, or even stimulate objectionable traits. Then a choice must be made between two evils. But it should be noted that such a dilemma arises out of mistakes or immoralities occurring previous to marriage. If the two requisites of sexual morality, both chastity and care in sexual mating, are observed, the marriage union will be permanent and happy, though neither by itself will be sufficient to ensure this.

Conditions Favorable to Sex Morality. Sex morality is one of the virtues most difficult to maintain, because it calls for the restraint of a strong instinct; and a combination of favorable circumstances is essential to its accomplishment. In the individual it requires personal morality of a high order, a strong ideal, and an active life; for sexual immorality may result either from a lack of self-control or of self-respect, or from the absence of a sense of responsibility, or from idleness and the consequent pursuit of pleasure; and all social conditions which produce such characteristics in the individual will therefore be dangerous to the welfare of the race.

Decline in sex virtue and in the stability of the family is most noticeable in old or disintegrating civilizations. The cause is

twofold: accumulated wealth stimulates the pursuit of pleasure, and the lack of any strong ideal leaves little incentive for the perpetuation of the family. The continuance of the family requires individual sacrifice; and it will not be earnestly undertaken unless the future is promising. A declining society offers no attractive prospects and their absence is soon apparent in the disintegration of the family. Excessive concentration of wealth may have an unwholesome influence in any society, but in societies which lack a definite purpose its influence is particularly demoralizing. Wealth is merely a means to an end, and, when sought for a worthy purpose, its accumulation is wholly advantageous; but when amassed for its own sake, or for the purpose of obtaining ease and pleasure, it is likely to result in moral relaxation. The assumption that wealth should bring pleasure without responsibility is a serious menace to family virtue.

On the other hand, social conditions which offer serious obstacles to the acquisition of wealth, or which make economic life difficult for a considerable part of the population, are also unfavorable to the stability of the family. The maintenance of a family requires an income and the prudent will not undertake the responsibility if the necessary means seem unattainable. They will refrain from marriage, or postpone it, or avoid the burden of children.

Sexual morality is most fully attained in that part of the population which is forced to labor, but which is able thereby to maintain a family according to accustomed standards. Such persons find proper outlet for their energies and are also enabled to satisfy their sexual instincts normally. Lecky says that sensuality is the vice of young men and of old nations, but fortunately the first at least is not necessarily true. Rather it may be said that vice is favored by a lack of economic sufficiency or by the attainment of economic competence; and that the decadence of society, rather than its age, fosters sensuality. Not every mature civilization is decadent.

The conditions outlined above include the primary factors influencing family morality, but others of secondary importance deserve mention. The status of women is said to have considerable effect on morality. A stable society will evolve conventions

for the preservation of requisite moral standards whatever the position of women may be, but when women are in the situation of changing from one recognized status to another, new safeguards cannot be immediately formed and moral standards may suffer on their account. As long as woman remains in a state of dependence, protection is afforded by social customs, but as she obtains greater independence she herself must begin to provide the new defences. And until her new consciousness of freedom is paralleled by a sense of her responsibility to society in preserving the institution of the family, morality may decline with her increasing independence.

Sexual immorality is increased also by any condition which facilitates the practice of vice. The system of slavery, extremes of wealth and poverty, a military system, or any form of enforced celibacy, all promote sensuality and afford means for its indulgence. Inequality in the numbers of the sexes also promotes vice, and even climate and food have their effects upon the strength of the instinct itself.

Nature of the Humanitarian Virtues. The humanitarian and social virtues promote harmony between individuals and smooth out complex social relations. If the theory is correct that individual development is the primary ideal, and that society exists as a means of promoting individual growth, then social morality is subordinate and auxiliary to individual morality. That it has commonly been raised to a position of primary importance is due to the fact that it affects the rights of others. A person who ignores the rights of others is more certain of condemnation by society than one who fails to develop his own talents.

By humanitarian virtues, as distinct from social virtues, is meant those qualities of morality which involve consideration for others, a consideration including both their persons and their possessions. Although all the humanitarian virtues may be comprehended in this single definition, they may advantageously be divided into those which respect the individual and his property, and those which attempt to facilitate social relations. The former are negative, implying the avoidance of injury; the latter are positive, promoting better relations between indi-

viduals. One of the highest of all the social virtues is truthfulness; and they gradually shade off in value to mere conventions, which can hardly be classed as morals but which do nevertheless facilitate social relations and are therefore virtues in the broad sense of the term.

Conditions Favorable to Humanitarian Morality. The negative type of humanitarian morality is the natural accompaniment of superior personal development. Recognition of the value of human life in general begins for the individual with the consciousness of the value of his own life. His normal development then through association with others conduces to a high regard for human life and respect for the rights of others. Respect for property evolves in a similar way, for it rises out of an individual's own sense of ownership. Respect for the individual is greatest where association is most intense and the individual is most highly developed; and respect for property is found where ownership is most widely diffused. These two conditions should advantageously accompany and supplement each other, for the possession of wealth contributes to a sense of individual importance; but under modern conditions they do not always exist together and sometimes they are conflicting forces. Humanitarian virtues would normally be more fully developed in cities than in rural districts, if property were more equally distributed; and they are actually more pronounced among the propertied classes in the cities.

On the other hand, respect of one individual for others is affected unfavorably by keenness of competition which is strongest in large centers. Excessive competition, whether economic or social, is especially demoralizing where any members of a society are repressed or are for any reason unprogressive. Then the inferior members are likely to attempt to displace those in superior stations by underhanded means. A superior may be permitted to go physically unharmed through fear of law, but his character and good name may be assailed through malicious gossip. This form of malice, arising through envy and jealousy, is the resort of the inefficient. It is the attempt of an inferior to raise his relative position by debasing others instead of improving himself. This form of injury is frequent when-

ever competition for position is strong, and it is even more common among women than among men, for women compete more intensely for social position, which is a relative rather than an absolute attainment. Acts of this insidious nature are most convincing evidence of the rudimentary state of the humanitarian virtues. They imply not merely a lack of charity but also an apathy towards justice and truth, and without these qualities the humanitarian virtues are mere superficialities controlled only by the force of public opinion. Theft of property may be prompted by extreme poverty, but the stealing of a good name is prompted only by envy and hatred.

Humanitarian virtues of the positive type arise partly out of the negative forms of normal respect for others, and partly out of economic requirements. On the whole honesty and truthfulness have developed most conspicuously in industrial nations. Systems of industry, such as banking and credit, are so dependent upon honesty that they have necessarily stimulated trustworthy habits. On the other hand trade offers opportunity for exploitation; and wherever probity does not seem essential to success, or especially where dealings are unaccompanied by personal interest, cheating is common. Honesty appears again among those who have few dealings with others and who have not learned the possibilities for gain at the expense of others. Truthfulness is partly a matter of intent and partly a matter of mental discipline. On the whole it finds its highest expression among superior industrial classes. Indeed, positive humanitarian virtues as a whole are stimulated by intense social relationships.

Social Morality Distinguished from Humanitarian. Social morality may advantageously be distinguished from humanitarian morality, though it is for the most part merely an extension of the same personal attributes. It concerns the relationship of individuals to associations and of associations to one another, or to society as a whole, rather than the relationships of individuals to one another. The significant characteristic is that the personal element in the former relationship is removed. The effect of an act upon a group is more indirect and often more obscure, and therefore public opinion does not enter as such a strong deterrent force. Humanitarian virtues are based

upon sympathy, which grows out of association on a basis of equality; whereas social morality is much more impersonal in its nature. Sympathy may prevent one individual from injuring others with whom he feels a sense of kinship, but no such sentiment would influence his relations with a corporation, or an association, or a commonwealth. In such relations as those, action for social welfare must be prompted by a finer sense of responsibility than is needed when the act concerns an individual. Social morality belongs only to a society containing many associations and having complex social relations. It grows not from sympathy for other individuals, but out of the realization that one is a responsible member of a social group, and that upon the welfare of the group depends the welfare of the members. That social morality is difficult of attainment is only too obvious from the constant transgressions against it. Persons who would scorn the practice of picking pockets may call it only clever finance to abstract money that has been raised through the channels of taxation. Or those who would not think of defrauding others directly may not hesitate to cheat corporations or to gain increased profits by depressing wages. Again, persons who could not conceive of cold-blooded murder will nevertheless take life by permitting unsanitary conditions, or will allow accidents to occur through carelessness or mistaken economy. The growth of impersonal corporations, with the consequent multiplication of indirect relationships, has offered unparallel opportunities for the acquisition of wealth by dishonest means and has been responsible largely for the selfish and unsympathetic attitudes of employers and employees towards each other.

The present low state of social morality can be traced largely to the rise of new conditions requiring social readjustments. With the growth of dealings between individuals and organizations the old sanctions for humanitarian morality have proved insufficient; and they must be supplemented by a deeper sense of responsibility towards groups and organizations. The indirect effects of acts upon the welfare of others must be more fully realized; and the sanctions of public opinion and of religion must be made more vital means of control.

Conclusion. In concluding this discussion of morality it is not necessary to argue the importance of high standards. If morality means the best way of acting for the good of the group, it is evident that a group cannot reach a high form of life if the great majority do not act in accordance with its interests; and the higher the standard of virtue followed, the more comprehensive will be the life of the group. An objective study of morality, however, does not warrant the simple conclusion that healthy life in a society is the result of moral action. The obverse is also true that moral action grows out of a healthy social life. Of course in one sense the former proposition is not open to argument; but it is not the whole truth if it implies merely that conduct is the result of an abstract ideal and is therefore basic in social relations, and that the character of society grows out of it. Moral conduct being only one factor in a network of social relations, it is possible to improve conduct by altering social conditions, just as it is possible to improve social relations by inculcating better ideals of moral conduct. The relative importance of different sources or methods of stimulating high standards of conduct cannot be accurately determined. It is probable, however, that the lower and more physical forms of morality are most affected by social conditions, and the higher and more refined forms are chiefly responsive to suggestion through an ideal. That is, inculcating morality through exhortation will have little permanent effect in a bad environment; but when the fundamentals of morality have been attained, then the individual becomes more responsive to ideals and less dependent upon improvement in the environment, though the latter is never without its influence.

In conclusion it may be said that in so far as society is affected by standards of conduct, its requirements both for survival and for progress will be met if the individual follows these rules:

He should develop his talents and increase his efficiency in every way both physical and mental.

He should preserve and strengthen the family circle for the highest welfare of both parents and offspring.

He should respect both the person and the property of other

individuals, so that all may enjoy equal rights and adequate opportunities.

He should not prefer his own interests to those of the commonwealth.

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CHAPTER XXIX



ART

The Nature of Art. In a broad sense art means doing or skill in execution in contrast to science, which means knowing. Every science is supplemented by an art and every art must be based upon science or technique. The relative importance of knowledge and skill varies, however, in the different arts, the industrial or mechanic arts being almost wholly dependent upon science, while the fine arts depend primarily upon skill in execution. The present discussion deals chiefly with the fine arts and only touches upon those higher industrial arts which have some of the same effects upon society as the fine arts.

Definitions of art vary according to different viewpoints. The essence of art, from the viewpoint of its effects upon society, is its power of transmitting emotions from one individual to another. Art is then both the expression of an individual and an appeal to other individuals. Yet it is evident that not all expressions of individual feeling, and not all transfers of emotion between individuals, can come under the head of art. Art carries with it an implication of excellence in form. Yet ideals of form vary with peoples and with epochs, and productions of the art of one cultural stage may come to be only historical curiosities at another stage. Even in a particular stage, productions which upon their first appearance impress popular opinion as art, frequently fail to survive the more deliberate judgment of the critic.

The real essence of art may then be expressed in the following definition: Art is such an expression of emotions experienced by one person as will awaken similar emotions in others. This definition is not unlike that of Tolstoi, who says that "art is a means of human activity consisting of this, that one man consciously by means of external signs, hands on to others feelings that he

has lived through, and that other persons are infected by these feelings and also experience them."

From such a point of view I can see nothing unnatural or injurious in a class art, which Tolstoi so strongly condemns, an art which appeals forcibly to some but does not touch all. The emotions, as well as the intellect, are capable of training and respond readily to differences of environment; therefore it is inevitable that forms of expression which will attract one individual or one class may not be comprehended by others. On the other hand it is quite true that there may also be such a thing as universal art. Human beings are after all so fundamentally alike that the expression of primary emotions, such as parenthood or the attraction of the sexes, should have universal appeal. But the art which aims to be universal must be general in subject matter and simple in expression.

Art as a Social Product. Although art is immediately an individual product, it is in the last analysis a social product, for the artist is himself a product of his social environment and obtains his inspiration from the sentiments and ideals of his time. The highest art is in fact the finest expression of these ideals. This point may be illustrated from the history of any kind of art which has a broad range of expression, such as architecture, painting, and literature. An illustration from architecture may be as simple as any. At an early period of social development, when ancestor worship was in vogue and the idea of immortality was the ruling religious motive, the monumental works of architecture were tombs. In the Middle Ages, when the intellectual life was restricted and the emotional life was highly developed, the church was the dominant influence and again the finest artistic expression took a religious form. But at this later period, in place of veneration of ancestors and family glorification in tombs, the architectural expression of the religious spirit was embodied in the great Gothic cathedrals. At a still later period, when feudalism had declined and the king's power had strengthened, when the state became centralized and enlarged its boundaries, the power and authority of the state became the dominant idea; and then the characteristic architecture represented royal or state power. In France and Spain this architecture expressed

a royal power that was practically absolute under Louis XIV and Philip II; while in England, Westminster, though built at a later date, stands as a sentimental monument to the importance of the people in affairs of state. In modern democratic times architecture is not nearly so representative, although two tendencies may easily be perceived. The importance of economic life is evidenced by the great buildings devoted to commerce and industry, and the demand for popular education is expressed in our libraries and other educational buildings.

Art Requires Freedom of Expression. If art is the expression of the individual, then excellence in art is dependent upon freedom in expression. Restrictions of any kind hamper expression and art suffers. In its broadest aspect this principle means that the more highly developed the individual, the more capable he will be of artistic expression. Therefore, social conditions which in any way dwarf the individual are detrimental to the growth of art. This principle may also be applied to the different instruments of art, for one method of expression is often better adapted than another for the embodiment of a particular idea. Even the materials employed may enhance or detract from the value of artistic expression. Marble is better adapted than wood to convey the impression of the sculptor, and painting is a more versatile mode of expression than sculpture. In the field of literature, poetry, fiction, the drama, all have their vantage grounds, yet language, however eloquent, is a feeble instrument compared with the brush in the portrayal of nature.

But over and above its dependence upon freedom in expression does excellence of art depend upon the directness with which the artist impresses his personality upon the product. If the artist is removed in any way from his work, that human touch which constitutes all true art vanishes. Attempts are continually made to avoid this troublesome principle. The process of printing in color would it was hoped place pictorial art within the reach of everyone. But chromos could never satisfy the artistic sense. Machine-made music, perfected as it has become, has failed to replace the value of the personality of the musician himself. All mechanical contrivances lack the essential factor of direct human expression. Even in the

industrial work of the artisan class the general effect of machinery has been to intervene between the laborer and his product and to make impossible any direct expression of the personality of the worker. The result has been detrimental both to the worker and to the product.

The Field of Artistic Expression. The meaning of art in the broad sense implied in the definition, may be further exemplified in the practical applications of aesthetics to every-day life. As a general principle it may be stated that the province of art includes not only all those products which are of permanence in the environment, but also those temporary influences which are likely to sway the emotions and produce a lasting impression on the memory. The extent of the field over which art may at any given time be realized is of course a practical question. If all the parts of the environment cannot be given positive beauty, they may at least be made inoffensive in their appearance.

Among the applications of aesthetics to every-day life, its importance to dress is obvious, because nothing is so intimately connected with the individual as clothing. Everyone appreciates the psychological effect of clothes, — the ease of mind or actual satisfaction that accompanies the consciousness of being well dressed, and the self-consciousness or even misery that shabbiness may entail. Indeed it is not entirely true that "clothes do not make the man," for not only may dress be taken as a direct expression of individuality, at least when it is the result of choice, but the kind of clothing habitually worn has a direct and palpable effect upon the development of personality.

The influence of dress has a direct practical utility in the work of reformation. In prisons, and above all in reform schools for boys, the inmates should never be permitted to become slovenly and unkempt in person or in clothing. Morale and self-respect should be cultivated through special attention to personal appearance. The effect of prison stripes is positively demoralizing and their stigma acts as a steady influence to undermine manliness in a situation which demands every incentive for the building up of pride and the strengthening of courage.

Inasmuch as dress forms such an intimate part of the per-

sonality, it would seem to offer the natural and common channel for the expression of the artistic taste; but unfortunately dress is affected chiefly by the forces of custom and imitation, and changes in style have catered rather to the desire for distinction than to the satisfaction of the aesthetic sense, so this excellent means of artistic education is largely wasted.

Another important field of art, because it too is an intimate and continuous part of the environment, is the home. Almost unlimited opportunity exists in the home for individual expression, yet here more than anywhere else the results indicate lack of true artistic perception on the part of the majority of home makers. Beauty in the home is of course partly a matter of expenditure, yet it is even more a matter of good taste, as illustrated by the fact that the homes of the wealthy are not always superior artistically to those of the middle class. Wealth is often obtrusive, seeking mere display and proving restive under the restraints imposed by the refinements of art.

Household art has a practical application in the movement for social betterment. Poor housing conditions should be condemned not merely on sanitary but on artistic grounds as well. The character of tenements may have a dominating influence, just as dress may, upon the occupants for the promotion or for the discouragement of shiftlessness. So too is the aesthetic improvement of schools desirable, not only for its direct effect but also because of its tendency to offset the undesirable influences of unsightly homes.

In the larger field of civic art is to be found one of the most potent agencies for the cultivation of aesthetic appreciation in a community, for the influence of the beautiful town or city permeates all classes and reaches even those who lack aesthetic values in home life. Better social results are probably obtainable, therefore, through the medium of civic art than through any other form. And if a city can advance beyond mere appropriateness in architectural designs and install really great works of art in public places, it can by that means cultivate critical insight and develop true aesthetic discrimination. The most notable example of civic art is of course ancient Athens, which has been described as "a jewel in the surrounding landscape."

Here, in addition to its incomparable collection of magnificent buildings, thousands of statues were displayed in public places. Indeed, Holborn says: ¹ "The number of statues was as great, or nearly as great, as the number of the population; greater than the number likely to be in the streets or open spaces at one time."

American cities of the present day could probably not be used with justice as indices of the artistic discrimination of the average citizen, for they are the expression of the industrial rather than of the artistic temperament. In the older cities at least, the beautiful has not been cultivated even when its presence could in no way interfere with the acquisition of wealth. In the newer cities, fortunately, there is manifest an encouraging tendency to add the beautiful to the useful.

Those modes of expression which are avowedly forms of fine arts, such as music, painting, and literature, need not be discussed in detail. They stand as the occasional and more subtle means of art education, but even as such they must be adapted in form to the different degrees of receptivity. Individuals to whom the so-called classical forms of art make no appeal may still be attracted by forms more elementary, though it is true that entertainments which are pleasing to the uncultured too often lack aesthetic value of even the most elementary sort and make their appeal to the grosser instincts or to morbid sensibilities, with the result that not only are valuable opportunities for education lost but positive injury is inflicted by their presentation.

Art as a Factor in Social Progress. The effects of art on social welfare and progress may be discussed under five heads. Since art is an expression of and an appeal to the emotions, its first and chief value must be not its power to give pleasure but its ability to educate the emotional nature. Development of the artist upon the emotional side is then the first result of art expression, for individuality develops directly through self-expression. But on the other hand, the individual is also impressed by and developed through the artistic expression of others. There is here action and reaction similar to that arising

¹ The Need for Art in Life, p. 71.

from the ordinary association of individuals, but supplementary and superior to that which comes from the direct contact between personalities. The knowledge of others to be gained through ordinary social intercourse is usually superficial, for one expresses his best self only rarely and under the most favorable circumstances. Art, however, is not only a superior form of expression; but it is also the expression of the exceptional person. It reveals the noblest sentiments of the finest characters. Great art will therefore appear only in a highly developed society, for superior art expression cannot be produced nor will it be appreciated by those deficient in social development. Francis Galton estimated that the average intellectual attainment of the ancient Greeks was considerably higher than that of the Europeans of the present day; and certainly Greek artistic genius, as well as Greek aesthetic appreciation, has never been surpassed.

The exigencies of modern social life demand special forms of emotional expression through art. With the advance in means of communication, and with the growth in density of population, association has widened, yet at the same time it has become more superficial. Instead of knowing a few chosen persons intimately, we have a shallow acquaintance with many. This knowledge of others through casual association is ample to secure moderate development of personality, but the deeper insight into character which can be acquired only through intimate association is frequently lacking. This deficiency is partially compensated for through art. Without doubt the present development of the theater and of the novel serve to fulfil a demand in our natures which our present extensive social life fails to satisfy. That is, the deficiency in the social relationship is left to the specialist to supply. Moreover, art is superior to social intercourse in that it gives us a more profound and more illuminating perception of human traits than can ever perhaps be obtained from association however intimate. Yet this kind of association has the defect of being one-sided. The recipient feels the appeal of the artist but has no opportunity of expressing himself in return.

The second effect of art on social welfare is its elevating influence on conduct. This is the natural corollary of the first

proposition that art develops the individual, for moral conduct is to a large extent dependent upon that self-respect which accompanies a properly developed personality. While the influence of aesthetic surroundings upon conduct cannot be exactly measured, it is evident that such forms of immorality as uncleanness, drunkenness, and the general degradation which accompanies a slum population, are more unaesthetic in their origin than untruthfulness, for example, which depends more upon mental discipline than upon artistic appreciation. That an aesthetic environment does actually have an elevating influence has been sufficiently demonstrated by experiments in improving housing conditions, such as building model towns.

Mere development of personality is not, however, the total moral effect of aesthetic influences. Art counteracts the predisposition of the personality to become self-centered, by focusing attention upon abstract conceptions of the beautiful and the good existing outside of and beyond the individual; and, more than that, it expands the personality through merging it with the universal.

The third effect of art upon social welfare is its power to increase happiness and further individual efficiency, through the direct influence of beauty on the nervous organization. There is a measurable physical basis for pleasure and pain. Lines, colors, and sounds in harmonious arrangement stimulate the circulation and increase the energy of the body; and in so doing they create a sense of well-being. Whereas discordant stimuli inhibit the action of the bodily functions and decrease energy, and in so doing create sensations of pain.¹ Herein lies the basic cause of the subtle differences in influence between ugly and beautiful environments. Harmonious surroundings are soothing and gently stimulating, whereas ugly surroundings are irritating and depressing. Even though the aesthetic surroundings may not come into the range of consciousness, their effect is real nevertheless. Efficiency is actually increased by beauty and decreased by ugliness. The truth of this principle is not affected by the fact that persons long subjected to the influence of ugliness do not respond immediately to the influence of beauty,

¹ See Yrjo Hirn, *The Origins of Art*, Ch. 3.

for their perceptions may have become dulled. But persons who are sensitive to beauty are usually equally sensitive to ugliness, just as a trained musician is sensitive to discordant sounds.

The fourth effect of art on social welfare, and the one perhaps most generally recognized, is its power as a stimulus to activity. Men act from the spur of the emotions, rather than through any pressure from the intellect, and consequently an appeal to the emotions is a direct incentive to action. This fact is recognized in the various uses of music. Music is used to stimulate action in war or to direct the emotions in periods of joy and of triumph, or of sadness and of mourning. Religion recognizes and uses this principle and has at different times allied itself with almost all forms of art, utilizing them as powerful instruments for influencing conduct.

The effects of art already described are primarily individualistic in their action, but the fifth to be considered is directly social in its nature. Art not only reacts upon society through its development of the individual, but it plays its own particular part in the work of socialization, for individuals continually subjected to the same emotional stimuli come to be similar. Art therefore should be classed among the forces tending towards social integration. Art in its various forms depicts national achievements and ideals sufficiently to arouse strong national sentiments. Yet the socializing influence of art is not confined by political boundaries. Music, literature, and the drama may possess an appeal so universal as to become bonds between nations.

Social Significance of Different Forms of Art. In addition to the social effects of art in general, something may be said concerning the development and meaning of the different forms of art; but, as the rise of the separate arts depends upon two factors, — that is, both on the character of the emotional life and on the progress of science or technique, — it is hard to give an exact account of their separate developments. The natural, indeed almost involuntary, ways of expressing the emotions are through cries and movements of the body. Even among primitive peoples the dance, poetry, and music, represented by rhythm, are to be found. Rhythm, either in movement or in

sound, is perhaps the easiest and least intellectual way of expressing emotion, and is but little dependent upon social development. Other arts are more intellectual and are evolved from correspondingly higher social conditions. It is perhaps true, as De Greef maintains,¹ that arts which appeal to the ear are more emotional, and those which appeal to the eye are more intellectual. He believes there is some correspondence between the intellectual life of a people and the kind of art which it produces and appreciates. Music and oratory, he says, appeal to an emotional people, while architecture, sculpture, and painting are the expressions of a more thoughtful and scientific people.

Following the primitive individual manifestation of art in rhythm, architecture appears as the first artistic expression of a more intense social life. Great architectural works require for their construction extensive coöperation, and the finished product has social significance, for it shows that many persons have united for a common purpose. It may be said, therefore, that architecture indicates the existence of a feeling of social solidarity, together with, of course, sufficient economic resources to make great undertakings possible. This feeling of solidarity may be political and show itself in governmental buildings, or it may be expressed through the figurehead of the sovereign or hero and take the form of a palace or a tomb, or the solidarity may be religious as shown by the building of temples. The last type is well exemplified in the history of the Jews and of the Greeks and is especially well illustrated by the Europeans of the Middle Ages. The element of utility connected with architecture was also a stimulating factor in its development and caused it to reach a high degree of perfection before other arts.

Sculpture and painting appeared later because they are more complicated and more intellectual types of expression. They express in more detailed form the specific ideals and achievements of advanced peoples. And much the same thing is true of music and literature. In fact in the status of any of these arts may be detected very clearly the rise or decline of a people or of a period. An art of aspiration, produced during the rise

¹ Guillaume De Greef, *Introduction à la sociologie*, Pt. II, p. 178 *seq.*

of a people, is distinguishable from an art of achievement or of enjoyment representing height of national development; and different from both of them, and not infrequently frivolous and sensuous, is the art which marks national decline. During the rise of the Greek states the male type of beauty, the athlete, was the prominent ideal; later female beauty dominated, indicating less strenuous ideals and greater capacity for enjoyment; and later still, portrayal of personal pleasures rather than of social ideals, marked the beginning of the decline. In Italy the period of aspiration was reflected in religious art. Development reached its height in the individualistic and joyous art of the Renaissance, and the decline, which was characterized by a return to religious subjects, portrayed extremes of sentiment and suffering foreign to the aspirational art of the early period. At the present time an early stage of an art movement is apparent, for the predominant note in art is distinctively aspirational, as is well illustrated in music and poetry. And the portrayal of social problems, particularly in the novel and in the drama, illustrates the desire to attain a juster form of social democracy.

Conditions Favorable to the Development of Art. Since the effect of art on progress and on social well-being is so important, it will be worth while to consider next the conditions under which art is likely to appear and the means which may be used to stimulate its development. In a study of this kind masterpieces of art must be accepted as criteria both of artistic achievement and of popular appreciation. The fact should also be kept in mind that, inasmuch as architecture usually precedes sculpture and painting, great architectual works may appear before the forces giving rise to a particular artistic movement are far advanced, while the high crest of painting may be reached only when the movement as a whole is on the wane.

The conditions favorable to the development of art may be divided into two groups: first, the physical and social factors which stimulate artistic products; and, secondly, the more personal influences which produce artists. The general physical and social conditions favorable to the production of art may best be shown by a brief review of some of the great periods of art production.

Influence of the Physical Environment. Analyzing first the physical influences, it is apparent that art has had a much greater development in warm southern countries than in cold northern countries. In no northern country, except the Netherlands, has any complete school of painting developed nor has sculpture attained distinction even there. Sculpture even more than painting has been the product of warm countries. And no great architectural styles have developed north of France, notwithstanding the fact that buildings have a greater value in cold than in warm countries. The only arts in which the development in northern countries is comparable to that in southern countries are music and literature, these being the arts least affected by the physical environment.

This unequal development of art is the result of a direct as well as an indirect influence of the environment. Perhaps the most obvious advantage possessed by warm countries is that civic art may be more freely exhibited there than in cold countries; sculpture particularly may be more appropriately exposed to view in public places. In cold countries works of art are much more likely to be housed in museums. Now museums are excellent institutions, particularly for the use of special students; but, for the popular development of artistic taste, they are ineffective compared with an open air civic art. But even if the displays of art were equal, the busier life of the people of northern countries would allow them less time to examine and appreciate it. The idler life of southern countries, on the other hand, gives people both the leisure and the disposition to see and to admire. And undoubtedly the continuous exhibition of works of art is an important factor in stimulating popular appreciation. In no city in the world has so much fine art been exposed conspicuously to view as in ancient Athens, and no people in the world have been more appreciative observers and more intelligent critics than the Athenians. This appreciative insight has of course been a cause as well as a result of the greatness of the art displayed, for a discriminating taste demands high art.

Furthermore warm climates tend to develop a more intense form of social life than is possible in cold countries. People are more likely to spend their leisure time out of doors and to

gather in public places. This intense social life develops the emotional side of individuals. It awakens in them desire for pleasure, for excitement, and for variety. The mind is more alert and impressionable and the whole intellectual life is much more responsive to the expression of artistic feeling. In cold countries the indoor life favors isolation of individuals or small groups, who become less dependent upon the pursuit of pleasure but who can apply themselves more continuously to mental labor. The emotional life of the common people is less well developed, but at the same time it is not so well controlled, so that emotional excesses are not uncommon. In cold countries family life is better developed, and conditions are somewhat more favorable for the pursuit of science.

Aside from these direct influences of the environment upon the intellectual and the emotional life, indirect or secondary influences have helped to make warm countries the natural centers of the arts and especially of sculpture. The physical environment and the human body are among the chief sources of inspiration for the production of art, and in warm countries these sources are much more stimulating. In cold countries man protects himself from the environment, while in warm countries he is in much closer contact with it. Where the body has to be well clothed people are less accustomed to the nude and artists less frequently study it and reproduce it. Contemplation and appreciation of the beauty of nature are also more common under favorable climatic conditions.

An interesting minor effect of the physical environment is its influence in determining the type of art produced. Sculpture and painting are strongly influenced by atmospheric conditions. Sculpture has reached its highest development in dry climates, such as Egypt, Asia Minor, Greece, and Central Italy, where the atmosphere is clear and objects have distinct outlines. In the Netherlands, on the other hand, the climate is exceptionally moist, and the humidity of the atmosphere renders outlines indistinct and causes objects to merge into one another. As Taine observes, "in Holland the spot is the noticeable thing, while in Greece the line is prominent."¹ Thus the very atmospheric

¹ H. Taine, *Lectures on Art*, Second Series, p. 225.

conditions of Greece were favorable to the development of sculpture, and even the Greek and Pompeiian paintings showed clear-cut figures against simple backgrounds, possibly representative of the clear atmospheric effects. Atmospheric conditions in Holland, while not conducive to clearness of form, do produce constantly changing color schemes. The greenness of nature, the varying density of the mists, and the lights and shades, all combine to give prominence to the earth instead of to the sky, and to produce a delicacy of color unknown in drier regions. Climatic conditions in the Netherlands therefore, and in Venice also, have been strong influences in making these places the homes of the greatest colorist schools in the history of art. Music and literature, on the contrary, have been less strongly influenced by physical conditions. Painting and sculpture express those emotions having their origins in the external world, while music expresses the more subjective emotions. Music in its highest form is the product of a contemplative, philosophical people. Literature is a much more complicated and varied art. It expresses the experiences, the desires, and the aspirations of a people. And while its forms may vary in different environments, literature of one kind or another is to be found wherever peoples are sufficiently advanced for self-expression. It is as likely to mature with a thoughtful as with an emotional people. It is interesting to note that in Germany, the home of science and philosophy, of literature and of music, its great painter Dürer is considered one of the most intellectual painters of any school.

Influence of the Social Environment. Although physical influences upon art are powerful and varied, they have not been strong enough to make the South the exclusive home of art, for not all warm countries have produced great art and no country has produced it at all stages of its development. Therefore other influences connected with the social environment must be more potent than the physical environment in determining the production of art. An analysis of the periods most notable for the greatness of their art,—such as those of Italy during the Renaissance, of the Netherlands during the 15th and 17th centuries, of England during the 16th and of France during the 17th centuries,—all show that art is perfected always in an

advanced stage of social life. The economic life of a society must have reached such a point in the accumulation of wealth that a leisure class has been evolved with time and means to devote to cultural activities. Art will then receive the patronage essential to its healthy growth; and history has demonstrated that this growth will continue until pursuit of immediate pleasure becomes so exclusively the object of society, or moral corruption becomes so general, that the morale is undermined and strong emotions are no longer possible. Then art rapidly degenerates. The decline of art is usually discussed from the purely artistic standpoint, and is attributed to servile imitation of the great masters, to an abandonment of nature as a source of inspiration, or to a failure to appreciate and express the national ideals. These are doubtless correct analyses of the course of events; but behind all these factors lies the general truth that, if the social conditions had continued favorable, there would have been a process of selection among artists, eliminating imitators, and popular demand would have brought to the front great artists who could continue to express social ideals. The fact that, in a period of decline, artists select trivial or sensual subjects, or that they pervert their talents by servility to patrons, shows that the social ideals have themselves degenerated to a plane unworthy of artistic representation.

The development of art then requires wealth and leisure, but they must be accompanied by virility and idealism. Wealth in a degenerate or disintegrating society will be powerless to produce a high type of art. Art, however, does not seem to be dependent upon intellectual development nor even upon moral attainment, though the character of art may be of a higher type if accompanied by superior moral and intellectual qualities. Greece at her best reached a superior stage of development in all three of these spheres. But the period of the Renaissance in Italy, though active in intellectual and artistic lines, lacked the moral element. It was a period of violence, licentiousness, and corruption; but nevertheless the corruption was not the kind which showed lack of force and virility. In the earlier period of the Middle Ages Europe generally lacked the intellectual factor, though art flourished and moral ideals revealed lofty

sentiments and self-sacrificing devotion. It appears therefore that art, although influenced in its direction by moral and intellectual conditions, is able to develop independently of them.

In every historical period, however, art seems to have reached its zenith at a time of economic prosperity. In Italy the intellectual and artistic revival came at a period when the cities were accumulating wealth from the Mediterranean trade and were the banking centers of Europe. The wealth acquired was spent in luxurious display, social intercourse was refined, and the arts were cultivated.

Similar conditions existed in the Netherlands during the 15th and 17th centuries. Their cities held the trade of the North and were beginning to rival the Italian cities as banking centers. And, although prosperity and artistic development were interrupted by the religious wars of the 16th century, recovery was rapid and the production of art continued through the 17th century. The inhabitants of the Netherlands differed greatly in character and temperament from the Italians, and their wealth was more evenly distributed; but, for northern countries, luxury and extravagance prevailed and the people as a whole were ardent supporters of the fine arts. It is reported that a banker paid 600 florins for a single figure by Vandemeer of Delft.

In England and France also the period of greatest artistic development coincided with that of economic prosperity and of luxurious expenditure. During the time of the Renaissance in Italy both of these countries were too wasted by war to show any great intellectual development. And the people as a whole possessed a lower degree of culture than the Italians. In England, however, after the destructive Wars of the Roses, the reign of the Tudors brought sufficient peace and prosperity to permit a considerable accumulation of wealth, which was shared by the middle classes as well as by the nobility. During the Elizabethan epoch the favorable social forces culminated in an exceptional period of scientific and literary activity.

France did not reach her stage of intellectual development until the 17th century, when the administrations of Richelieu and Mazarin prepared the way for the glories of the early years of the reign of Louis XIV. This period produced a literary and

scientific activity comparable to the Elizabethan epoch in England; and it included also notable building, painting, and sculpture. The luxury of this period did not proceed from a very firm economic foundation, being based rather upon oppression and an unjust system of taxation; but nevertheless it served for the time being to produce an artificial class prosperity sufficient to stimulate the arts. In fact art would have attained an even higher stage of development had it not been for the fact that Louis attempted to impress it so strongly with his own personality. This period furnishes an example of the repression which art may suffer from too great interference from its chief patron.

Spain, at first glance, appears to be an exception to the rule of the coincidence of art and prosperity; at least it seems anomalous that Velasquez should have been painting at the court of Philip IV. It should be remembered, however, that Philip's reign marks the end rather than the beginning of the great period of Spanish art, and the height of prosperity was reached in the reign of Philip II. Furthermore, with the exception of Ribera, the Spanish School was almost entirely a product of Seville. Now Seville, on account of its location as the natural center for both foreign and domestic trade, was a comparatively prosperous city in a destitute country. Although it suffered severely from the emigration of the Moors after the Christian conquest of 1248, it recovered wonderfully after the discovery of America, as it had the monopoly of its rich trade. Certainly it is significant that so many Spanish artists were natives of Seville. Moreover, Philip IV was a generous patron of the fine arts, and in an absolute monarchy the advantages of royal patronage are signal. The Spanish School, though brilliant, was small; but the few great masters indicate what Spain might have produced had she been wisely and economically governed from the time of Charles I.

In ancient Greece conditions were different, for economic life rested upon slavery rather than upon the activity of free citizens. And attainment of leisure was not so much a consequence of wealth as it was of the modesty of personal desires and the ease with which they could be satisfied. The food, clothing, and household equipment, considered essential, were of the simplest;

and, consequently, labor could be largely utilized in the production of luxuries. An Athenian citizen, except when needed for the defence of the city or the performance of simple political duties, was free to devote himself to intellectual pursuits and to pleasure. Moreover, the patriotism of the Greeks, their religious beliefs, and the uncertainty of their relations with their neighbors, were all influences tending to quicken the emotions. The character of their religious beliefs deserves particular mention. Religion is always an important source of artistic inspiration and it was exceptionally influential in Greece because it was so purely anthropomorphic. The religious factor, therefore, stimulated the production of the human form in its perfection, and religious conceptions of Athene, Aphrodite, and Apollo, were responsible for some of the greatest of the Greek productions. The advantage which the art of Greece derived from her religion may best be realized by comparing her idealization of gods and goddesses with the grotesque composite productions which represented the more confused religious conceptions of other ancient countries, such as Egypt, Assyria, and Phoenicia.

Little is known of the conditions under which art appeared in Egypt; but a point of interest concerning early art there is that, after it had reached a high stage of perfection, it became so hampered by conventionalities imposed upon it by the priestly class that development almost entirely ceased. Both Egypt and France illustrate in different ways the evils of restriction on expression.

Political Influences. In addition to economic status, other social conditions have a minor influence on art. War does not in itself necessarily interfere with the production of art; on the contrary it may excite the emotions and indirectly stimulate artistic expression. When, however, war is long continued, so that it is exhausting to economic resources, it does interfere seriously with artistic production.

Nor does art depend directly at least upon political systems. It develops under an autocratic as well as under a democratic régime. In fact where an absolute ruler is favorable to art and becomes its patron, art may rise more rapidly in an autocratic than in a democratic society where the public must serve as

patron, for it takes much longer to develop a cultured taste in a whole people, or even in a whole class, than it does in a single sovereign. On the other hand, the period of artistic activity is likely to be shorter and the decline more rapid under autocratic than under democratic conditions; for in the former case the patronage of art may suddenly cease with the death of a monarch, while in the latter case, if a whole people have acquired artistic taste, the demand will continue as long as the society remains in a healthy condition. In democratic Athens, where conditions were generally favorable, art of the highest order lasted for at least three centuries and then the decline was gradual. On the other hand, under the absolute monarchies of France and Spain artistic excellence was of short duration and decline was rapid.

To summarize the environmental influences on art, it appears that artistic activity depends directly on the existence of strong emotions, and upon freedom in their expression; and that, therefore, it is likely to thrive in warm climates and in societies which have acquired sufficient wealth so that tastes may be cultivated and artists may be educated. Political conditions seem to influence art only indirectly, in so far as they affect freedom of expression or, in troublous times, excite the emotions. Social forces condition the existence or non-existence of art, while physical forces determine the direction and possibly the intensity of artistic activity.

Influence of Education. The general physical and social conditions which favor artistic development have now been reviewed, and it remains to consider the conditions favorable to the appearance of artists. These are partly educational, and this type is particularly apparent in the present period. Although the past century has shown a marked increase in the production of wealth, it has not been distinguished for artistic activity, and the causes are partially within our power to control. Art, depending as it does upon an active emotional life, does not easily develop in an age preëminently scientific where cultivation of the emotions is neglected. Psychology and education have had little concern for the emotional side of the mind. The tendency has been either to let the feelings run riot without systematic training, or to attempt to suppress them by a relative

over-development of the intellect. The present emphasis on the exact sciences in our system of education will in time give place to a better balanced schedule, the emotions will be more carefully studied and developed, and the arts will again hold a prominent position.

Another defect in our system of education is already being remedied. Hitherto the passive side of education, absorption of knowledge, has been emphasized; while the active side of application and expression of knowledge absorbed has been neglected. Now art is expression, and its production therefore requires an active rather than a passive system of training. The same principle applies to appreciation as well as to production of artistic products. It is the individual who can express himself who can appreciate also the finer expressions of others.

Influence of Machinery. Progress in art has been retarded also by the general use of machinery. The influence of machinery is not of course wholly deleterious because it has multiplied and cheapened reproductions of art products, thereby stimulating interest in and assisting the study of art. But machinery has interfered with the direct expression of the individual, turning lower-grade workers into automatons, and making of higher-grade workers mechanics instead of artisans. The result has been to repress artistic appreciation and decrease the proportion of artistic products. This has been disastrous because people have become accustomed to ugly or indifferent objects and have ceased to demand beautiful ones. Little opportunity has been left for the development of discriminating taste. A good illustration may be drawn from the history of furniture. As long as furniture was made by hand, it passed through the normal processes of artistic development. In England, from the early products, plain and severe, the styles showed steady improvement until their artistic culmination at the end of the 18th century, when artists and architects of ability designed furniture and superintended its construction. In the early part of the 19th century, furniture, though still meritorious, was beginning to show an over-developed flamboyant tendency in style indicating a decline, and after the introduction of machinery scarcely any beautiful furniture was produced. The styles be-

came positively ugly until the Arts and Crafts Movement by introducing simplicity in design produced furniture which, if it had little positive beauty, possessed the negative value of being unobjectionable. Under the influence of machine-made products the demand for the beautiful furniture of the 18th century died out, and the recent renewed interest in it seems often to be a demand for antiques rather than for beautiful styles.

The influence of machinery has been detrimental to the taste of the consumer because it has interfered with the development of household art, but it has also been injurious to the worker. Under the old system of hand work the artisan put his personality into his work and obtained pleasure as well as development from the sense of creation. Under the present system the machine comes between the worker and his work. He cannot express himself directly and therefore lacks the interest and the growth which should accompany production. As William Morris says; ¹ "To give people pleasure in the things they must perforce use, that is the one great office of decoration; to give people pleasure in the things they must perforce make, that is the other use of it."

These observations should not be understood in any way to be a plea for the abolition of machinery, but only for a more rational use of it. Machinery should be used whenever it can do the work better than the artisan, and so far as possible it should be made to perform disagreeable work. Such a program would call for the extension of machinery in many lines. On the other hand, art should be applied to that part of the environment which is of permanence and which continually influences personality. Such an ideal would require a redistribution of the field of production between machinery and the artist, or artisan, and is not possible of immediate realization. Machinery means more and cheaper articles, and human welfare often demands economy. On the other hand, it cannot too often be repeated that life does not consist in an abundance of things. Simplification of life with enrichment of aesthetic standards would promote well-being.

Conclusion. In this chapter the purpose and influence of

¹ The Decorative Arts, p. 7.

art have been reviewed together with the conditions under which art is likely to flourish. These conditions include the nature of the physical environment, the stage of economic development, and educational influences, only part of which are susceptible of modification. The physical environment is fixed, and economic conditions change slowly; the educational factors alone are possible of direction towards a given end. Educational influences however may be used for two purposes, for the development of artists, and for the improvement of the taste of the people. The development of artists is the simpler problem for, although talent cannot be produced at will, the talent available can be developed through the medium of proper schools and equipment; and in any healthy society artistic products are likely to respond to the demand. The stimulation of an effective demand for art is therefore the primary requirement of any people who seek to develop this phase of social life. And especially is this true of a democracy where the people as a whole must become discriminating critics and intelligent patrons of the fine arts, if these are to rest upon an enduring basis. The best method of obtaining this end is by a gradual improvement of the surroundings, first in the sphere of civic art, and next in the household.

The result of developing the aesthetic side of life would be far-reaching, for it would supply a cultural element which in modern societies is noticeably lacking and which would help to perfect individual character and to complete social life. It would enhance the enduring enjoyments of life and in this way counteract some of the repressive effects of factory and workshop, and would emphasize by contrast the sordidness of the interminable struggle for material gain. Its cultural effects would supplement the intellectual activities and the achievements of modern society, which are altogether too strongly turned in the direction of the practical and the material. And finally, it would improve the relationship of men to one another by decreasing egotism and by softening the uncompromising struggle for personal advantage. It would elevate personal standards and would improve moral relationships.

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CHAPTER XXX

SCIENCE

Science is usually defined as a classified body of knowledge; but this definition implies a completeness in our knowledge which the present discussion cannot assume. In considering the effects of science on social progress, it will be necessary to go back of the advanced stage of scientific thought and take account of positive knowledge in its beginnings, before it assumed the classified form. Science as used here, therefore, refers to the spirit of investigating phenomena, or studying facts, as over against the spirit of mere speculation or of superstitious belief. The growth of science represents a new spirit or state of mind in society, and it also presents an explanation of the universe founded on intelligence and reason instead of on the imagination.

Effects of Science on Social Progress. The consequences of the growth of positive knowledge are so complicated and far-reaching that it is impossible to follow them in all their ramifications. Only their more general effects can be indicated. The difference between knowledge and ignorance seems at first glance to be sufficient to account for the entire difference between progress and stagnation; but such is not the case, for certain kinds of progress, such as those resulting from selection, take place independently of positive knowledge. The effects of scientific knowledge are of two kinds, those which influence the mind, and those which affect the environment. The first effect of science is to expand the mental horizon, giving us broader conceptions and a more active mental life. This is especially true of astronomy, which enlarges our ideas of time and space by revealing the vastness of other planetary systems; but the same thing is true of other sciences which reveal the composition of matter in our own world and teach the marvellous laws of life.

A second result of science, which has been emphasized by Fiske,¹ is that it gives man a conception of law, an understanding of true cause and effect. This not only helps to develop the mind, but it has also a direct effect upon conduct, removing it from the influence of superstition to the domain of reason. After man learns to separate real cause and effect from the mere sequence of events he can adapt himself better to external influences and avoid much suffering. He learns also to take account of the future instead of confining himself entirely to the present. For example, when man understands the true nature of such phenomena as volcanoes, earthquakes, and floods, instead of attributing them to the vengeance of an angry god, he is in a position to protect himself intelligently from their injurious effects.

A third effect of science is that it restrains and directs the emotional life. In helping to make reason instead of impulse the guide to action, science accomplished more than seems at first apparent, even though science has tended at times to go too far in stifling the legitimate action of the feelings. Under the increasing domination of reason man has attained a better perspective and has been able to distinguish more intelligently between important and unimportant things. At the same time he has attained greater self-control. Instead of yielding blindly to the emotions he has acted with greater and greater deliberation. This increased power of discrimination and self-control have had a remarkable effect upon man's actions. In giving him greater toleration they have done much to lessen opposition and to restrain the inclination to go to war over fancied grievances or over petty differences. Indeed, he is much more likely to count the cost before entering upon any kind of activity. He will not, from a passing impulse, enter upon great undertakings which are impossible of execution. Reason, therefore, in supplementing impulse, has been a powerful agent both in causing man to avoid destructive and useless activities and in enabling him to economize time and strength in the pursuit of useful ends.

The final result of science upon progress is the one most

¹ *Outlines of Cosmic Philosophy*, Pt. II, ch. XXI; reprinted in Carver's *Sociology and Social Progress*, p. 478.

generally recognized. Science being the basis of art, the progress of knowledge has stimulated and perfected useful arts. Science has enabled us to make great strides in the conquest of nature, and has made possible to some extent the control of different forms of life. The resulting increase of wealth has intensified happiness and has opened new channels of social progress. The influence of science is so far-reaching that only its general effects can be mentioned here. The more detailed results will be considered later in connection with the discussion of the separate sciences.

Individual Causes of the Advancement of Science. As the progress of science has altered the course of human progress so materially in the past, and as it is likely to be the most important factor in determining social progress in the future, it will be of great advantage to study the immediate causes of the advancement of science, and also the social conditions in which these causes are most likely to operate. The distinction between the causes and conditions of the advancement of science is not hard to understand, though it may not be possible always to follow the dividing line exactly in discussion. Science is advanced by individual effort, and stimuli to the individual form the immediate cause of its advancement. But these stimuli to the individual will act strongly only under favorable physical and social influences, and these are what I have called the conditions of the advancement of science. They are a step farther removed from the product than is the cause. As crops are cultivated in soils of different degrees of fertility, so science is pursued under conditions more or less favorable to its advancement, but science cannot reach a high stage of development except under favorable social conditions.

The causes leading to the advancement of science are difficult to trace, so many and varied are the influences affecting the intellectual life. Chance discovery has of course increased scientific knowledge, but the amount of credit which should be given to this factor will depend upon our ideas of what really is accidental in discovery. The alchemists, in trying to produce gold from the baser metals, discovered a number of valuable chemical compounds. These discoveries were accidental in the

sense that they were not the real objects of the researches, yet the compounds would not have been discovered if the alchemists had not been experimenting in the field of discovery and with particular chemical elements. Chance discoveries are seldom made far from the field which is the center of attention. Certain discoveries, like the properties of saltpeter, may have been wholly accidental; but such instances are rare. Therefore instead of making pure accident an important cause of the advancement of knowledge, it is more nearly correct to say than an unexpected element often enters into scientific discovery.

Another minor factor aiding the progress of knowledge is idle curiosity. Probably the early observations of the stars and the planets were due to little else. Few discoveries, however, can be attributed to this incentive alone, although curiosity in some form enters into the majority of scientific discoveries. Ward¹ quotes De Candolle as saying that, "the principle of all discoveries is curiosity." But such an assertion gives us little help. Our task lies in attempting to discover those influences which arouse curiosity. Mere curiosity accompanied by no other motive seems really to have had little influence in advancing science. It is true that students engaged in research may select one problem rather than another, simply because they have a greater interest in it; but their motive for investigating any problem is quite different from idle curiosity.

The greatest stimulus to the progress of science in its earliest stages comes from the attempt to achieve some great object. Although logically science is the basis of art, historically early art precedes science and is the greatest incentive to its advancement. The history of almost all the sciences shows that they owe their origins to a desire to attain some practical end, and that in their later stages also the same objective rules. The desire to celebrate religious festivals at regular intervals stimulated the study of astronomy in order that exact measurements of time might be obtained. Among the Hindoos the study of mathematics was stimulated by the requirements of religious worship in building altars and laying out courts. According to

¹ Pure Sociology, p. 445.

Max Müller,¹ the Hindoos also struggled with the problem of making a square altar of the same size as a round one. In Egypt, geometry found its stimulus from the need of parcelling out the land fertilized by the Nile. The progress of architecture also increased knowledge of mathematics and physics. The great European cathedrals were built before scientific works upon architecture appeared. It is said that the needs of Alexander's campaigns in Persia contributed to the study of mathematics and physics. And the desire to save human life has always been a great incentive to the study of biology. These are simply a few illustrations of the kind of stimuli which have been most potent in the advancement of science.

After science has once gained a start, however, if social conditions are favorable, it will progress even without the immediate incentive of a practical need. As knowledge advances men begin to recognize its general value and try to extend it in every direction, believing in its ultimate, if not in its immediate, usefulness to mankind. This is science for the sake of science and is well exemplified in the present period of scientific development. Such a method of increasing knowledge is never purely arbitrary however. Not all forms of truth are considered of the same value at any given epoch. Even if scientists have not always in view some practical end, they are more likely to be interested in those departments of knowledge which have a bearing upon the immediate needs of their epoch. It will be observed, therefore, that this last influence, science for the sake of science, is not wholly separated from the preceding one, science for the sake of art, although in it a new motive is present. In addition to the need of solving an immediate problem, the recognition of the value of all positive knowledge becomes a new incentive to its further advancement.

Physical Conditions Favorable to the Development of Science. After this brief enumeration of the individual causes of the progress of science, we may turn to a consideration of the external conditions under which the pursuit of science is most likely to flourish. Science is more likely to advance, at least after a start has been made, in cold or in temperate climates

¹ Origin of Religion, p. 142.

than in warm climates. According to Professor Cattell's "Study of Eminent Men," France has produced the largest number of scientists of any country, and England the next largest. This order is true not only in the absolute number, but also in the percentages of the total numbers of eminent men. Italy surpasses all countries in its proportionate number of artists. If the ancient civilizations were included in this comparison, the supremacy of the North would not be so evident; but it is hardly fair to include the ancient civilizations, for when they were flourishing societies in the northern countries had not matured. When northern societies did develop they produced their quota of scientists, though they failed to produce their proportionate number of artists.

The chief explanation of the advantage which cold countries have in the development of science is to be found in their greater needs. The environment is harder to subdue and at the same time man's requirements are greater, hence there is a continual incentive to improve the useful arts; and the attempt to improve arts is, as has already been said, the most important stimulus to the advancement of science. In addition to its greater needs, life in northern countries seems somewhat better adapted to the development of a thoughtful people. In southern countries social intercourse is more continuous and conditions are therefore less favorable for concentration. In northern countries more time is spent within doors, and social intercourse is interspersed with periods of isolation; and this condition is most favorable to the development of new ideas. Too isolated a life, however, would furnish no impetus for new ideas. Of course the desirable balance between the social and the secluded life may in particular cases occur in warm countries, but ordinarily physical conditions seem less favorable there than in colder countries.

Social Conditions Favorable to the Development of Science. Physical conditions are, however, less potent than social conditions in stimulating the advancement of science, as well as that of art. Three conditions of social life may be mentioned as especially important in preparing the way for scientific development. First, society should be far enough advanced in numbers and in wealth to have evolved a class that can devote its time to

intellectual pursuits. This condition is brought about comparatively early in society by the caste or class system, and later is made much more effective by division of labor. New Societies cultivate science but little, because they have neither produced a leisure class nor have they extended the system of division of labor far enough to permit individuals to devote their whole time to scientific pursuits. Secondly, a society should be active, for such a society undertakes new enterprises and stimulates science through the medium of the arts. Dormant societies, such as China and India, are satisfied with past achievements in knowledge; but when such societies reawaken, as has Japan, they feel the need of devoting themselves to the acquisition and extension of knowledge. Thirdly, social conditions should be of a kind that will enable man to emancipate himself from tradition. This is a different thing from what is commonly understood by freedom of thought. There are certain conditions in which men seem incapable of thinking outside of traditional ways, while under a different environment they may show great mental vigor in the face of severe persecution. Inasmuch as rigidly prescribed beliefs in society are usually due to the authority exercised by religion, emancipation from theological restrictions ordinarily precedes periods of mental activity. History gives us two well-marked periods of scientific advance, the Greek period of scientific thought, and the modern period beginning in the sixteenth century; and both movements began under similar circumstances. In both cases emancipation from theological dogmas preceded scientific activity, and this emancipation was accomplished by the stimulating effects of geographical discoveries. In Greece many of the old religious myths were actually disproved by these geographical discoveries, while others were undermined by the enlarged vision resulting from them. Similarly in the modern period intellectual life was greatly quickened by the discovery of America and the circumnavigation of the globe; and the authority of the church was weakened because of its strong opposition to the Copernican system. In 1616 the Inquisition issued an edict, which has never been repealed, declaring that to suppose the sun the center of the solar system was false and contrary to the Scriptures. It is

true that in the modern period before the discoveries were made, society was by no means stagnant; in fact the discoveries themselves were due to an awakening of intellect which may be traced to several sources, the chief of which was doubtless the travel and trade resulting from the crusades. Traced back to their sources, therefore, it will be seen that religious superstitions were themselves responsible for the movement which finally exterminated them. If, as a third period of scientific growth, we take into account the intellectual development of the Arabians, we shall find that this also was preceded by extended migrations and conquests, which affected greatly the religious beliefs of the Mohammedan conquerors. The whole intellectual attitude of the Saracens changed after their conquest of Africa. Although in the three cases just cited geographical discoveries were responsible for the change in mental attitude, no one agency can be held responsible in all cases for the emancipation of the mind. Where the forces of conservatism are very strong, a powerful social upheaval may be necessary to prepare the way for the reception of new truths. If, however, the intellectual condition is less rigid, milder changes may serve to stimulate thought. After scientific development has once begun, the resulting succession of new truths themselves offer the best security against the excessive influences of tradition.

Ordinarily an active society will free itself from the bonds of tradition; but this does not always happen, as is evidenced by the history of Spain during the period of intellectual activity which followed the geographical discoveries. Spain was an active country from the 14th to the 16th centuries; but its activity was not sufficient to overcome its intellectual conservatism; and this seems to be the reason why Spain took no part in the scientific progress of that period.

The most important stimulus to the development of the mind, according to Lester F. Ward, has been the formation of the system of caste, because it produced a leisure class. A caste system may certainly be advantageous in the early stages of mental development; but a society under its domination is likely to become conservative in an attempt to safeguard the interests of the privileged class. And when a caste system becomes rigid

and traditional, its usefulness is gone. When the leisure class is also the priestly class, usually it does perform the service of preserving knowledge; but the very tenacity with which it clings to old ideas prevents it from discovering or accepting new ones. In the long run then a caste system has many disadvantages, and at no time is it as efficient in advancing knowledge as the system of division of labor.

Inasmuch as both science and art frequently respond to the same general conditions, it may be supposed that all conditions favoring the two are sufficiently alike to cause them to develop together. But this does not always happen. Art, literature, and science developed in much the same period in France, and the same is also true of the Netherlands. Literature and science developed together in England. In the Arabian civilization architecture, literature, and science flourished simultaneously. In Italy, however, scientific activity followed art by at least a generation and was relatively less important. And in Spain science was hardly recognized when art and letters were cultivated brilliantly. Furthermore in Greece science developed at a considerably later period than art; but, on the other hand, in modern times science has made wonderful progress, while the achievement of art has been insignificant. The attainment of wealth and leisure is desirable for the development both of art and of science, and freedom from interference is essential for the best interests of both; but other circumstances may determine whether the intellect or the emotions shall develop more fully. A society which is very rigid in its intellectual beliefs may produce a high grade of art in giving expression to those beliefs; and a society may encourage the fine arts without developing the useful arts, and hence not give any special stimulus to the advancement of science. A luxury-loving class which may patronize the fine arts is likely to be conservative and intolerant of revolutionary discoveries. An underlying seriousness in the social life conditions scientific activity, and this was entirely lacking in Spain in the 17th century. On the other hand, young active societies are likely to show an interest in science before they make any headway in the production of the fine arts. Economic conditions which produce luxury, with social conditions which

stimulate the emotions, foster art; while economic progress which encourages the useful arts, and social conditions which emancipate the mind from tradition, are the great incentives to the development of science.

Origins of the Various Sciences. The discussion thus far has been confined to the origin and general effects of positive knowledge; it now remains to consider the more detailed effects upon progress of the separate sciences. The origin, or at least the early development, of each of the sciences may in almost every case be traced to an attempt to improve an art, or to obtain some specific object; and the chief service to society of these sciences has usually been the solving of those very problems which gave them their origin. A brief account therefore of the beginnings of the different sciences will open the way to a discussion of their effects upon social progress.

Astronomy. Astronomy was one of the oldest sciences to take definite form; and it is supposed to have originated in Egypt or Chaldea, although China has very old astronomical records. In Egypt the study of astronomy was probably first stimulated by the phenomenon of the overflow of the Nile, upon which Egyptian civilization depended. The exact time of its recurrence was a matter of importance, and the passage of time was most easily measured by the movement of the stars. The first study of the heavenly bodies, made to mark the passage of time, soon led to more detailed study for another purpose. It was noted that the Nile began to rise with the heliacal rising of Sirius, and this coincidence was easily mistaken for cause and effect. The conclusion therefore naturally followed that if Sirius had such an extraordinary influence upon the affairs of men, other stars must also have their influences. To ascertain the amount and character of these forces led to the study of astrology, which was long a center of attention, and which enlarged the knowledge of the heavenly bodies. Both in Chaldea and in China the desire to measure time accurately, as well as the wish to forecast the future, caused a careful study of the heavens. In Phoenicia the desire to obtain an accurate guide for travelling either by sea or land was the peculiar incentive to the study of the stars. The chief incentives to the study of astronomy then have been the

desires to measure time accurately, to find dependable guides for travel, and to foresee the future. And the accomplishment of the first two desires has been of continuous service to society.

That astronomy first developed in desert countries where the air is clear and the stars are easily visible the greater part of the time, is a fact worth noting. These were pastoral countries, too, where shepherds could follow the movements of the stars either out of curiosity or to measure time. Astronomy would have had an early origin even if it had not been for the overflow of the Nile, yet it is doubtful whether under different atmospheric conditions it would have developed so soon.

Physics. The common laws of physics, as well as the simplest movements of the heavenly bodies, were known so early that we are unable to trace their sources. The Egyptians, again, were probably the first to study physical laws, for the pyramid builders must have had considerable mechanical as well as astronomical knowledge. Later engineering feats, such as the canal of Rameses and the various contrivances for controlling the waters of the Nile, would be considered creditable achievements even at the present day, and hence they show notable advancement in engineering skill and in knowledge of the laws of physics. Thus in early times interest in building and engineering enterprises fostered physics.

Chemistry. In ancient times chemistry was cultivated in a practical way in metallurgy in the manufacture of colored glass, and in the dyeing of fabrics. But interest was early turned aside from these practical needs to the visionary one of transforming the baser metals into gold. This quest of the alchemists was begun in ancient Egypt and was continued through the middle ages until the scientific awakening of the 16th century. On the whole it was more of a hindrance than a help to the advancement of chemical knowledge. A more profitable study lay in the search for curative agents. At first this took the fanciful form of a search for the elixir of life; but, after the time of Paracelsus in the 16th century, a more scientific attitude was fostered, and medicine became the chief medium for the advancement of chemical knowledge. Up to the 19th century the only labora-

tory of chemistry was the pharmacist's shop.¹ In comparatively recent times chemistry has found other incentives, such as, for example, the desire to improve agriculture.

Biology. Chemistry and biology are more closely allied than any of the other sciences. Knowledge about both animals and plants was of course gained in prehistoric times in the search for food. But from ancient civilizations even down to modern times, the great stimulus to the advance of biological knowledge has been its value to the healing art. In ancient and mediaeval times almost all the contributors to biological knowledge were physicians with the possible exception of Aristotle, and it is doubtful if an exception should be made of a man who kept a pharmacy shop. At the Alexandrian museum the subjects of natural history and anatomy were carried on by the Faculty of Medicine, one of the four faculties originally established at the museum. In addition to medicine, agriculture furnishes a root for biology as well as for chemistry.

Psychology. In early times psychology had an obscure origin in metaphysics, but as an inductive science it is of recent growth. In addition to the metaphysical problems which the study of the mental processes were supposed to solve, two practical problems may be mentioned as stimulating the development of psychology. First, treatment of pathological mental states, which unites psychology with biology and chemistry, in that all three have their origins to some extent in medicine. Secondly, analysis of mental states and the course of mental development for the improvement of the intellect and the amelioration of human conditions through better methods of education.

Sociology. Finally, sociology arises from the desire to cure social ills and improve social relations, just as biology rests on the attempt to heal physical disease. This is not true of all the social sciences, especially not of economics which found its chief incentive in the attempt to increase the material wealth of one social group at the expense of other groups. Sociology, however, as a general science, has its chief root in the desire to heal. The existence of poverty, crime, labor disputes, and other

¹ Wm. H. Welch, *The Interdependence of Medicine and Other Sciences of Nature*, Science, January 10, 1908.

social mal-adjustments, has stimulated an interest in the principles of human association and the laws of social development.

Order of the Development of the Sciences. This brief review of the social origin of the various sciences leads us to the problem of their effects upon social progress. To make this clear it will be advantageous to separate the sciences into three groups by diagonal lines, so to speak, the divisions not corresponding to the recognized boundaries of the different sciences. The first group includes astronomy, the greater part of physics, and lesser parts of chemistry and biology, and comprises what may be called the sciences of the environment. The second group includes a small part of physics and larger parts of chemistry, biology, and psychology and comprises the sciences pertaining to individual life. Sociology and a part of psychology form the third group and treat of social life. If the sub-sciences were included, the divisions would not be materially altered. A part of economics would be included in group one, as dealing with the environment, and a part of geology would fall into group two. These three groups may be designated for the sake of brevity as the natural sciences, the biological sciences, and the social sciences, dealing respectively with the physical environment, with individual life, and with social life.

The historical order of the development of the sciences is a complicated problem. Comte affirmed that they developed from the simplest to the most complex in the following order,—astronomy, physics, chemistry, biology, and sociology; but such a serial order of development has been denied by Spencer and others. However this may be, in the three-fold division of the sciences which I have given, it seems clear that the sciences dealing with the environment developed before those dealing with life, and that the latter group developed before those dealing with society; and this is, moreover, the order of their present stages of advancement.

The development of the sciences seems to have been influenced, first, by the immediate interests of men, and, secondly, by the complexity of the phenomena investigated. These two factors account sufficiently for the relative stages of growth of the different branches of knowledge at different times. In early

stages of civilization attention was concentrated chiefly upon the physical environment. To obtain a food supply and other necessities of life easily, to secure protection against enemies, to provide for the needs of the dead, and to satisfy the demands of the gods, were all important needs which stimulated a study of the environment and brought at least a practical working knowledge of the simple laws of mathematics, astronomy, and physics, together with a scant acquaintance with minerals and with vegetable and animal life.

The phenomena of life itself, the desire to live indefinitely and to overcome disease, focussed attention only a little later than the problems of the environment. But the phenomena of life proved much stranger and more complex than objects of nature which might be closely examined; and positive knowledge about them was slowly acquired. The heavenly bodies and other natural objects which were so far removed that their character could not easily be perceived, on the one hand, and living things which were so complex that they were not understood, on the other hand, remained objects of superstition and speculation much longer than familiar inanimate objects. The persistence of religious superstition materially delayed knowledge of human anatomy and disease, favoring rather the pursuit of astrology and alchemy. The anatomical studies of the Alexandrian school were in opposition to prevailing sentiments, and among the Arabians also the Mohammedan religion hindered the study of biology as compared with the other sciences. Biology, therefore, developed later than the physical sciences, not because it failed to attract attention, but because it was too complicated to be understood at an early stage of mental development.

The social sciences, on the other hand, developed last, both because they attracted little interest at an early period and because they dealt with complex phenomena. It is true, as Spencer points out, that some practical knowledge of social organization must have appeared at a very early time and conditioned, in a sense, all forms of progress. But this kind of knowledge was almost instinctive, like that possessed by gregarious animals; or, at least, it was a product of gradual experience. Before social organizations became complex they were not a subject of study

like physical phenomena. Politics was the first social science to arouse interest, if we except ethics, which in its origin was connected with religion or philosophy, and was hardly an inductive social science. An interest in politics did not arise until social organizations differed in form and provoked comparisons. Mere aggregation did not stimulate the study of politics, nor did complexity of organizations so long as they were based on force. But when the possibility of actual change in form of an organization appeared, and when different forms could be compared, then differences in efficiency were revealed and became objects of study. Under such conditions appeared Plato's "Republic," Aristotle's "Politics," and Machiavelli's "Prince." Economics and other social sciences followed politics; but so difficult and complicated are the laws of association, that, even with the present facilities for investigation, a general science of sociology can hardly be said to be established. The three comprehensive groups of sciences here outlined seem, therefore, to have appeared in the order given in accordance with men's interests and with the complexity of the phenomena to be studied, though the sub-sciences, and probably also the primary sciences, did not develop in accordance with their complexity alone. The additional factor of immediate needs of mankind is strong enough to disturb materially Comte's theory of their historical development.

The Development of the Sciences Shows Interdependence. It is possible now to go a step farther and show that the growth of one group of sciences prepares the way, both directly and indirectly, for the growth of another group. The direct effect of the advance of one science upon others is a well-recognized fact and this influence is not by any means always in the direct order of their serial development according to Comte's classification, but is frequently in the inverse order. A knowledge of physics, for example, has helped to advance astronomy as much as it has aided chemistry. This form of the interdependence of the sciences need not be enlarged upon.

The sciences have a less direct effect upon one another through the alteration of social conditions and changes in men's interests. Thus the earlier sciences have in a sense prepared the way for

the later, and the development of the later sciences has often given a new impetus to the further advance of the older. The extended knowledge of the physical sciences has produced two great results: first, it has increased man's power over nature; and, secondly, it has helped to free the mind from the bonds of superstition. The conquest of nature has increased the food supply, as well as other forms of wealth, and therefore made possible a larger population and permitted its concentration in small areas. This increase of population, however, preceding as it did adequate understanding of biology in the form of medical and sanitary knowledge, resulted in a high mortality rate, which is always a heavy drain on society and therefore a great impediment to progress. Not only was the ordinary death rate high, but occasionally plagues swept over large areas making fearful havoc in the population. Authorities state that the Black Death in the fourteenth century took half the population of England. These pestilences were spread by the increased travel and trade made possible by the very progress which had been achieved in the control of nature. This period of the predominance of the natural sciences may be called the great period of natural selection. The growth of population, made possible by increasing control over nature, was held in check by a high death rate, unrestricted because of the lack of medical knowledge. But these unfortunate conditions resulting from the unequal advancement of the sciences developed influences which were destined finally to reduce the evils. Disease and death have always been considered evils of sufficient magnitude to cause men to try to avoid them in more or less rational ways; and in a concentrated population these evils are brought forcibly to men's attention, especially when they come in the form of a disastrous pestilence. Furthermore, intensive association, incident to large and dense populations, is the chief means of developing sympathy and arousing the wish to alleviate the sufferings of others. Hence broader sympathy, combined with more vivid realization of the amount of suffering in existence, became incentives for an increase in the effort to lessen the evils of disease. Moreover, changes in modes of thought caused these efforts to take a scientific turn. Previously, superstitious beliefs

had hindered the progress of science. Plagues were considered visitations of the divine wrath; disease was treated with charms or with appeals to the saints; and the growth of anatomical knowledge was hindered by religious superstitions which forbade contact with dead bodies. But the new knowledge of the material world gradually relaxed the hold of these superstitions and prepared the way for the scientific observation of the course of disease and the study of anatomy by the laboratory method.

In describing the effects of the natural sciences and the influences which caused the development of the biological sciences, I do not mean to imply that the progress of knowledge has been continuous and uninterrupted, so that one particular period of history may be cited as having conditions favorable for the origin of biology. There have been many periods in which the forces here mentioned have been at work, more or less effectively, for the advance of biological science. Perhaps at no time have they been more in evidence than at the present, when, for example, modern conditions have called attention to the ravages of tuberculosis and have increased the efforts to overcome that disease; or when the havoc caused by insect pests has become so disastrous as to induce a careful study of insect forms of life in order to eradicate the harmful ones. These influences, so clearly manifest now, have been consciously in operation in a greater or less degree since the 16th century. They were at work also during the later period of Greek civilization; and, had it not been for the persistence of religious superstition, they would have been effective in the Arabian civilization.

Turning next to the effects of the biological sciences, three important influences may be mentioned. First, biological knowledge, through the prevention and cure of disease, has greatly decreased the rates of mortality. Secondly, through the destruction of injurious pests and through the selection and cultivation of vegetable and animal life, it has multiplied and improved the food supply, and incidentally it has increased other forms of wealth. In these two ways then the sciences of life have made possible an increase in population, at least as great as that made possible by the physical sciences. But it should be noted that the biological sciences are supplementary to the

physical sciences. Both stimulate the growth of population, but the biological sciences make possible the avoidance of the suffering and waste existing before their development. Neither group can do its proper work without the other and each group has been a stimulus to the growth of the other. Sanitary measures could not be carried on without engineering knowledge, the present concentration of population would be impossible without sanitary precautions, and a large food supply would be useless without means of rapid transportation and communication. Thirdly, the biological sciences have begun to improve individuals and the race as a whole through selection and education. Medical science has been severely criticized because it has counteracted the effects of natural selection by making it possible for the unfit to live and propagate their kind. Without doubt a partial knowledge of the laws of life has produced temporary evil effects along with the good. But the remedy lies not in a return to former conditions, but rather in the adoption of new methods through the perfection of knowledge. Psychology has already enabled us to make rapid strides in educational systems and in the treatment of mental diseases; and a better knowledge of the laws of heredity, and improved methods of social control, will enable us consciously to direct the course of racial progress, instead of leaving it to the process of natural selection.

The past century may be regarded as preëminently a period of biological discovery, not because the physical sciences have not also made remarkable progress, but because biological discovery is the new factor which has been added to the influence of science on social progress. This new factor is destined to further in a wonderful degree individual efficiency and well-being. It has already diminished human suffering and will in the future enable us to conquer other evils. But our rapid conquest of nature, and our increasing control over different forms of life, have introduced new evils, which instead of being self-corrective seem likely to become worse unless new remedies are found in the social sciences.

Mention has just been made of some of the undesirable effects of medicine in counteracting the forces of natural selec-

tion. The remedy for this evil will not be found in biological science alone. A more searching study of the dependent, defective, and delinquent classes must be made before adequate reform can be even begun, and such work is an important part of social science. Modern ideas of humanity will never be satisfied with an indiscriminate production of dependents, soon eliminated by selective forces because they are incapable of adapting themselves to the environment, even though the vigor of the population is maintained by this method. Nor will the sense of self-preservation long suffer an indiscriminate production of dependents to be kept alive as burdens on the community and as a menace in their liability to multiply and thus lower the average vitality and efficiency of a society. The only solution consistent with the modern viewpoint lies in studying the causes of the evil and applying the remedy at its source, so that fewer dependents will be produced and the average vitality of the population will be raised. This will be accomplished only through coöperation between the sciences of individual life and of social life.

Another evil effect of the increased production of wealth, together with the unrestrained propagation of human beings, has attracted still greater attention and has probably been the greatest influence in stimulating the study of sociology as a general science of society. The greater control over nature, made possible by the advance of the natural and the biological sciences, and the increased wealth resulting therefrom, have affected different parts of society very unequally. Certain individuals, who for one reason or another had an early advantage in accumulating wealth, have been able to retain that advantage and even pass it on to their descendants; and it has moreover frequently been cumulative. On the other hand the descendants of those who lacked this special privilege, or were hindered by a positive disadvantage, suffered proportionate or even greater handicaps. And in the older societies the possibility of improvement through individual effort becomes more and more difficult. The resulting divergence of classes, which may have been useful in certain stages of social progress, is obviously out of harmony with the present trend of development. Society suffers because

such a large proportion of its members lack opportunity. Forces at work in progressive societies have, it is true, been slowly moderating this evil; but now modern sentiment demands a more rapid change. And this attitude has stimulated the study of sociology in order that reorganization in the relationship of classes may be made in accordance with the natural laws of growth and with as little shock as may be to the social body.

Finally, the social sciences supplement the natural and biological sciences by making their work more effective. The science of politics should perfect the general social organization and promote efficiency in all kinds of collective activity. The science of economics should aid in the conquest of nature by a better direction of the agents of production and exchange and should further human efficiency and well-being by improving the process of the distribution of wealth. Similarly, jurisprudence, ethics, and other social sciences should help to eliminate or control the anti-social elements in society, and should in general facilitate the social relations.

The social sciences, therefore, the last of the three groups, contribute to progress by remedying evils left untouched by the other sciences; they improve social conditions, and perfect social organization so as to increase social and, therewith, individual efficiency.

Summary. We find then that the natural sciences developed first, because man was interested first in the conquest of nature and the simpler physical laws could be grasped at an early period. This period brought an increase of wealth but was wasteful of human life. The desire to save life led the way to the study of biology, and its scientific treatment was made possible through the enlightenment which came with the spread of knowledge. Knowledge of the physical environment and of life, however, did not prevent social disease from flourishing and did not greatly improve the social condition of a large part of society. To overcome these defects the social sciences within recent years have been cultivated with increasing seriousness. It is true that social conditions from very early times have been such as to demand a knowledge of the social sciences; but except in a few cases, and then only in a limited way, men's in-

terests did not turn in that direction. Interest in the social sciences has had to wait for the enlarged sympathies and the sense of solidarity which appeared with the growing interdependence of dense populations, and these conditions have been dependent upon advance in the other sciences.

With the cultivation of the social sciences, then, the chain of knowledge will be complete, at least so far as the needs which have already appeared are concerned. For each group of sciences will solve one or more of the great problems which man has encountered in the process of his development. The physical sciences will solve the problems of the environment, the biological sciences the problems of life, and the social sciences the problems of society.

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CHAPTER XXXI

RELIGION

Classification and Description of Religions. Religious beliefs and practices vary so much in different environments and in different stages of culture that, although an individual may understand those of his particular social group, religion as an universal social product is difficult to define accurately or even to comprehend. For this reason a brief description of the religious beliefs that have existed in society at different stages of culture may be a more useful introduction to the subject of religion than a formal definition would be. Professor Tiele has made a useful and, for the present purpose, a sufficiently detailed classification of religions as follows:¹

I. Nature Religions

A. Lower Nature

- a. Animism
- b. Spiritism

B. Higher Nature

Organized Polytheism

- a. Therianthropic
- b. Anthropical

II. Ethical Religions

- a. Particularistic
- b. Universalistic

Some of the early religions are difficult to describe and their practices are even more difficult to interpret. Primitive religions are comprehensible only when the mental processes of primitive peoples are understood. At a very early stage of mental development man interprets death, sleep, dreams, and occasional abnormal mental states as evidences that he is possessed with a double or soul which has the power to separate itself from the body temporarily, and which finally leaves the body

¹ Elements of the Science of Religion, First Series.

never to return. Furthermore, primitive man makes no accurate distinction between the animate and the inanimate. The tendency to interpret all external phenomena in the light of his own feelings and experiences causes him to attribute to objects of nature, or at least to such of them as seem important to him, the possession of a soul like his own. This belief, that a large number of natural objects as well as man himself, are possessed with a thinking, feeling spirit, is called animism.

Spiritism is merely a development of animism with no very strong line of demarcation. To understand all phases of this belief one must keep in mind the helplessness of primitive man before the forces of nature, and his absolute lack of comprehension of cause and effect. To him, as to the unthinking everywhere, coincidence of phenomena is interpreted as causal influence. With increasing experience in the satisfaction of his wants, and in the successes and failures attending his acts, and with growing intelligence in interpreting events, man is convinced that there is a multitude of external forces influencing him. He performs certain acts and unforeseen evil visits him or his tribe; he performs other acts and unforeseen good fortune attends him; or he performs the same act at different times and obtains entirely different results. Surely the unseen forces which influence his life are sometimes friendly and sometimes hostile. Man continues to interpret these forces from his own consciousness and on the basis of his own personal powers. The only force he understands is the one he himself possesses, that spirit whose presence animates his body and whose absence leaves it inert. Therefore he concludes that the same kind of force must govern nature as well as himself. Consequently he believes the universe to be filled with a multitude of spirits exerting sometimes favorable and sometimes unfavorable influences. These spirits, however, are not necessarily attached to any particular object. In this phase of belief important natural objects do still have their own spirits; but these spirits may leave the objects to which they belong, just as the spirit of man may during sleep temporarily leave his body and wander to distant places. In addition to these particular spirits which can be properly accounted for, there are also the departed spirits of the dead; and, further-

more, there seem to be also numerous tramp spirits, so to speak, of unknown origins and with no definite attachments and responsibilities, and such spirits may be of great annoyance to human beings in the innocent performance of their duties.

In this stage of mental development religious observances are of grave importance in the life of man, for he must continually outwit or placate unfriendly spirits and honor and reward well-disposed ones. Medicine men and magicians, who are experts in dealing with spirits, come to have a dominating influence over the life of the tribe. This is also the period of myth formation. Curiosity demands an explanation of the processes of nature, wise men try to account for them, and the most acceptable explanations are handed down from generation to generation, often in poetical language.

The belief in spirits and in their intimate association with human beings is accompanied naturally by another phenomenon called fetichism. If spirits are free to move about, entering or leaving different objects, it seems highly probable that curious or specially marked objects may be the favored abiding places of spirits. Such an object is a fetich; and its possessor, if he treats it with respect, may experience that good luck which the spirit is able to bestow. To the savage mind the truth of this supposition is abundantly confirmed by the good fortune which sometimes accompanies the possession of a fetich.

As the experiences of a people multiply, and as events of the past assume importance, notable individuals stand out as having possessed superior power and attainments. With the passage of time their achievements become magnified, their favor is courted, and therefore their spirits are worshipped as are the spirits of natural objects. This practice leads to ancestor worship, which in some societies tends to supersede the worship of other spirits. Spirits of the dead are worshipped in proportion to their importance and to their supposed interest in the affairs of the living. Hence each family reveres its own ancestors even when they are not important enough to be recognized by the tribe or nation.

While the religious belief expressed in spiritism is adequate for primitive peoples, the conception of the spirit world in this

stage of thought is extremely complicated and confused. As man's intelligence increases and as he views nature with more discrimination, he distinguishes a difference in importance among her aspects and even begins dimly to perceive an ordered universe. His mode of thought is influenced also by the change in the form of the political structure which at this stage is passing from the tribal organization to that of the state or nation. The outstanding features of the early state are law, order, and hierarchy of position. And these same characteristics, orderliness and hierarchy, man transfers to his spiritual world. In doing so he does not at once deny the existence of spirits formerly honored and believed in, but he gradually classifies them; and as his attention and his religious observances are concentrated on the important spirits, the unimportant are neglected and eventually forgotten.

This more highly organized form of religion, the outgrowth of spiritism, is called polytheism; but it develops gradually and undergoes extensive changes before it emerges into a form which may be classified as a separate religious belief. The gods still are nature gods; but social activities, which have been growing in complexity and importance, begin to receive religious emphasis. The heavenly bodies, the winds, mountains, and rivers continue to be worshipped; but occupations, such as war and agriculture, assume a significance which demands appropriate gods.

The expanding comprehension of human and natural forces finally results in the conviction that man is superior to nature and that human attributes are the noblest of all. In some cases, particularly in Greece, the gods have been represented as human beings possessing human qualities though to an exaggerated or perfected degree. In other cases, as in Egypt and in India, the gods have been idealized as beings unlike men and remote from them, and they are represented in grotesque shapes, often combinations of animals and men, suggesting that the gods are not subject to the limitations of men but possess all known powers.

During the period of polytheism the development of religion followed two important lines: the first a change in form tend-

ing towards monotheism, and the second a change in content from a nature to an ethical basis. The change in the direction of monotheism was due merely to an extension of those influences which caused polytheism to grow out of spiritism. On the subjective side it revealed a clearer conception of the essential unity of all nature. Human understanding finally attained the realization that the universe was not a product of many independent and oftentimes conflicting forces, but was the result of a single all-embracing power with innumerable manifestations. On the objective side monotheism resulted from the gradual elevation of one god above all the others until he entirely displaced them or else absorbed them into himself.

Of the change in the content of religion from a nature to an ethical basis the steps are obscure and not easily accounted for. During the early period of religious thought ethics was separated from religion and the two did not unite until the late period of polytheism. Individual conduct and the relationship of men to one another were governed by custom as expressed in the mores; and the relationship of man to the spirit world was governed by religious belief, which was on an entirely different basis. But this separation could not be permanent. When it came to be generally recognized that human beings were the most important forces in the universe, and when, therefore, the gods were conceived as possessing human attributes, inevitably they came to personify desirable or ideal human qualities. And as the gods passed from the representation of natural forces to the personification of virtues, the change marked one important step in the union of ethics and religion. It is probable that the physical conditions stimulating this mental transformation were the decline of the political unit based on blood relationship and the growth of a state having a much larger and more heterogeneous population than ever before. The change seems to have been assisted also by an increasing realization of cause and effect in nature. Moreover, the enlargement of the population increased social contacts and made the relations of the living with one another seem of relatively greater importance than the relationship between the living and the dead. And as the truth gradually dawned that phenomena in the external world were

the results of natural law instead of the direct interposition of spirits, the cultivation of friendly relations with spirits seemed less essential. The problem of social relationships was complicated also by the increased heterogeneity of the population. When members of the group were no longer either actually or by fiction blood relations, the old sanctions of conduct, evolved in the mores, proved inadequate to ensure group stability, and the reënforcement of religion was found to be useful in the regulation of conduct within the group. The denser the population became the greater grew the need of curbing the passions of the individual in the interests of the group as a whole. Such increased complexities in social relations, combined with a clearer understanding of natural forces, brought about the change from nature to ethical religions. Of course the attainment of a complete ethical content did not coincide with the conditions which produced the change but followed them tardily, for religious beliefs are modified slowly.

The two transformations in religion here outlined, from polytheism to monotheism, and from a nature to an ethical cult, do not necessarily accompany each other, though the fact that the great ethical religions are also monotheistic might lead to the supposition that they did. The amalgamation of ethics and religion usually occurs long before the acceptance of the monotheistic idea, and the influence of the one on the other is probably remote and indirect.

Ethical religions are usually subdivided; those which are universal in their nature, and therefore proselyting, are distinguished from those which are local or which pertain to a particular people. Professor Tiele classifies only two religions as universalistic, Buddhism and Christianity, though Mohammedanism is on the border line. Ethical religions differ fundamentally in their general characteristics, and they also show progressive development in spirit. The ethical quality of religions has changed from a mere desire to avoid doing specific injury to others in order to escape retribution in a future existence, — as exemplified in the morality of the Egyptian "Book of the Dead," — to a complete ordering of acts and thoughts so that the individual spirit may come into harmonious adjustment with the

universal spirit, — as exemplified in the lives of the Christian saints.

Definition of Religion. This brief outline of religious phenomena is sufficient to show that a definition of religion, if it is to describe manifestations of such diverse character, can be stated only in general terms and include only essential factors. Broadly speaking, religions in all stages of development have expressed the effort of man to adjust himself, through acts and observances, to external forces. Religion then may be defined as the expression of the desire on the part of man to come into more perfect relations with the unknown powers of the universe. In explanation it may be said that the term “unknown powers” is used because, as soon as natural forces are understood in the scientific sense, the observance of the laws passes out of the sphere of religious acts. For example, when the savage offers sacrifices to the god of thunder in order to protect his life, he is performing a religious act; but when civilized man tries to protect himself by the use of lightning rods, he is not performing a religious act. The phrase “come into more perfect relations” is necessarily a comprehensive one, for it must include acts most diverse, all of which are intended to adjust man to unknown powers. Primitive man may perform acts, which in later epochs seem absurd, for the purpose of frightening or charming spirits; the barbarian may perform acts of utmost cruelty; or the enlightened individual may undergo great sacrifices for the welfare of others; all with the same end in view. Finally, the term “expression of the desire” is used because a mere vague longing for better adjustment which finds no objective expression cannot be included among the phenomena of religion.

Religion and Science. With this definition of religion as a point of departure, the relationships of religion to science and to art may be considered. Its relation to morality has already been indicated. Science and religion supplement each other. The one deals with the known and the other with the unknown; the instrument of the one is knowledge and of the other faith. As knowledge increases and as reason becomes more refined, the sphere of science enlarges and that of religion recedes. Science appears to be continually encroaching on religion as immediate

actions seem to be governed more and more by positive knowledge and less by superstitious beliefs. The question therefore naturally arises as to the permanence of religion as a social phenomenon. Will religion disappear altogether as positive knowledge increases? The answer is that religion will disappear only when man becomes omniscient, for only then will the unknown, which is the province of religion, vanish. Religion is a relationship between the finite and the infinite. God has no religion.

The idea that the sphere of religion narrows as knowledge advances should not be interpreted to mean that men become less religious. The boundaries of the known are extended and therefore a large number of our acts no longer have religious significance in their immediate performance. The progress of science has so altered our views concerning the material universe that in advanced religions the nature aspect has entirely disappeared leaving spiritual phenomena only as the province of religion, while material phenomena become the province of science. On the other hand, religion and science, separated over the explanation of material phenomena, seem destined to reunite on a new basis. A religious phase which is practically new begins to emerge as man comes to a full realization of the unity of all force. The boundary line between science and religion then becomes vague and the two may merge whenever the human and the material elements are both involved, science furnishing the method and religion supplying the motive. The motive is always of primary importance, but without knowledge it may become misdirected. For example, when rules of health were little understood hygienic practices were made a part of religious rites; but when the laws of health had been ascertained they could be followed from other than religious motives; or they could still be directed by religious sentiment on the basis that health, being one form of harmony, was indispensable for the attainment of complete harmony. In the last analysis the whole difference depends on whether man's philosophy begins with the infinite and interprets the finite from that point of view, or whether man's consciousness begins and ends in the material and the trivial.

Much has been written concerning the antagonism between science and religion. So far as their fundamental natures are concerned no antagonism exists; but practically there is opportunity for continued disagreements in the matter of interpretation. Inasmuch as religion started as nature worship, it has had continuously to readjust itself to the progress of scientific knowledge. If it could do so promptly antagonisms would not arise. But religion, in order to inspire confidence, must be absolute in its dogmas and therefore it becomes extremely resistant to change. On the other hand science itself is not infallible. In its groping after truth science formulates many hypotheses only to abandon them, and for religion to try to adjust itself continually to every passing phase of science would mean the sacrifice of its prestige and authority. To protect themselves from liability to attack, ethical religions should free themselves entirely from the myths of nature religions and abandon the attempt to interpret natural phenomena. When religions confine themselves to ethical and spiritual phenomena, they will be unaffected by the changing hypotheses and interpretations of science in the material world.

Religion and Art. The relationship between religion and art is one of mutual aid and stimulation rather than of competition. Both appeal to the emotions, and religion has found art an indispensable agent in cultivating for her use a receptive and pliant attitude of mind. Aesthetic instruments include not merely architecture, painting, and music, as immediate forces, but also the formulation of myths and religious dogmas as a part of religious belief. The apparent conflict between religion and science is, to a considerable degree, more properly a conflict between art and science. The myths and dogmas of religion, which are really artistic appeals and merely instruments which religion has made use of, have been confused with religion itself. Therefore when, with the progress of positive knowledge, these dogmas become shattered, their destruction has been interpreted as a blow to religion itself instead of to one of its outworn instruments. From a viewpoint extending over the ages, it will be evident that the essence of religion has survived the annihilation of a multitude of dogmas. These in their time

served useful purposes, but to maintain its sovereignty religion will always have to keep pace with the advance of intelligence and knowledge by discarding concrete artistic appeals to the emotions which have become worn out, even though at the time of their greatest vogue they may have seemed the very heart of religion, so powerful was their sanction.

Art, in its turn, has found in religion, and in religious conceptions of the ideal, one of the most vital influences on its development.

Effects of Religion. Originally the chief value of religion lay in its explanation of the universe. This function has been a characteristic of all religions; but it is perhaps a more prominent attribute of nature religions when lack of scientific knowledge made necessary a religious explanation of the more common and immediate natural phenomena. Ethical religions, while abandoning the attempt to explain natural phenomena, still assume to provide answers to the ultimate problems of life.

The human mind demands some sort of explanation of life's problems, and while the answers furnished by religion were often crude and partial, they seem to have sufficed to provide a philosophical basis for action. Every active mind searches for some philosophy of life, and this philosophy forms the framework of its religion.

Another function of religion is that it fortifies the individual by allying him with external forces more powerful than himself. Of all the influences of religion, this is the one which has made the chief appeal to the individual in all stages of culture and in all forms of belief. From the lowest stages of culture where man tried to make a compact with the strongest of the spirits, to the highest stages of culture where man attempts to realize perfect harmony, the religious motive is the same. It arises out of the feeling of helplessness or dependence, and it is strongest when the feeling of helplessness is most oppressive. However, the conclusion to be drawn is not that religion is the refuge of the timid and the inefficient, for all people are alike dependent. The self-centered and the self-sufficient are the least religious. True religion is the instrument of those with a vision who seek complete harmony and the full realization of all their faculties.

A third effect of religion is its influence on conduct. This effect is the natural outcome of the two functions of religion already given. In so far as a person possesses a philosophy of life, and is not merely drifting, he must be influenced by that philosophy. The strength of the influence will depend on the hold which his belief has upon him, and the importance which it attaches to conduct. Nevertheless, the most effective impulse is the conviction that only in so far as he follows a particular line of conduct will the external forces be available to an individual. As religion deals with the non-material it presents non-material sanctions for conduct. Religion, in addition to the ordinary sanctions of law, custom, and public opinion, makes use of spiritual welfare both in this life and in a future life. Therefore in early times the relationship between man and nature and the spiritual world, and later also the relationship of men with one another, has always been regulated, in addition to the other means of social control, by the strong motives of religion.

Religion, as a method of regulating social conduct, has had undesirable as well as desirable consequences. In a barbaric age when social contacts were multiplying and the earlier forces of control were weakening, it was necessary and desirable to curb selfish and brutal instincts with the strongest weapon religion could furnish; but continuous appeal to the unknown has caused religion to remain absolute in its dictates and arbitrary in its methods. It is quite true that if religion is doubtful or vacillating in its precepts it fails to command respect and obedience; but the exercise of arbitrary power even in the religious sphere may lead to abuse, for religions as well as scientific systems are liable to error. Although exceptional men have perceived moral and spiritual truths which could be taught and applied with assurance, the nature of revelation has been such that others, with authority but without spiritual perception, have been able to supplement and reinterpret truths for selfish and even immoral purposes. And sometimes even genuine religious leaders, believing the religious truth in their possession to be all-inclusive and final, have crushed independence of thought and checked intellectual progress. Furthermore, the strong emphasis placed upon the sanction of the after-life has tended to make

religion conservative in its influence and has often caused it to ignore well-being in this life. Inasmuch as religion has been unable to guarantee immediate material rewards for right conduct, it has tended to place increasing stress on future rewards, and consequently to belittle the present life as a mere transition period. Religion, therefore, enjoining submission to those in authority, and teaching patient endurance of present hardships in the hope of future rewards, has ordinarily been a strong force for the preservation of the existing social order. Opposition to change has been widely accepted as the spirit of religion, and consequently religion has lost many adherents because of its conservatism. But however important these religious teachings may have been, it must be evident that they do not represent the essential spirit of religion in the least. They are either an over-emphasis of particular truths or a perversion of truths for selfish ends.

In addition to its immediate influences on the individual, religion offers also a strong bond of social unity, not only because those who think alike are drawn together through sympathy, but because the gods come to be looked upon as supreme rulers. And, as the gods have almost always been local rather than universal, loyalty to the same gods has been a sign of community of interests, or social integration. During the period of polytheism gods were definitely tribal or national possessions. The existence of other gods was recognized, but they were looked upon as foreign and inferior. No one could be adopted into a tribe who remained loyal to foreign gods. Much the same sentiment exists, though not so strongly, in monotheistic religions. While theoretically they all recognize only one god of the universe, marked differences of belief concerning that god, and striking variations in the modes of his worship, convince the adherents of each religion that all creeds other than their own are erroneous, and preclude any widespread feeling of religious unity. Traces of this bigotry are to be found even among the different sects and denominations of the same religion, and they form a disintegrating factor in society. The seriousness of a rift will depend of course both upon the importance which a society attributes to religion, and upon the strength of the opposition

between religious groups. Religious disunion, which at one stage of social development may make social life impossible, may at a more advanced stage be negligible, or may even become a mental and religious stimulus. The conclusion is that religion is always a strong force in socialization so long as its ideals and codes of morals are similar; and when variations in religious beliefs exist, their disruptive menace will depend rather upon the stage of social development in which they occur than upon the nature of the religious differences themselves. If social life has reached that stage where integrations are strong enough so that divergences may be tolerated, then religious variations will not be dangerous.

Factors in the Development of Religions. The description of the nature of religions given in the first section shows that they vary widely in different places, and that all pass through similar stages of development. The next task will be to ascertain the nature of those differences and to analyze the influences which have brought them about. Religions are so numerous and the influences affecting them so varied that it will be impossible to make an inductive presentation of such an analysis. The conclusions themselves, with sufficient examples for illustration rather than for proof, will have to suffice. The forces which determine the character and growth of religious ideas may be classified under three heads: character of the physical environment, stage of mental development, and social and political conditions.

Influence of the physical environment. If we should confine our study to nature religions alone, it would be almost a truism to say that religious belief was determined by the character and variety of the physical environment. If anyone is attempting to explain nature he is of course interpreting that part of nature which he sees. Mountains and rivers, moisture and dryness, cold and heat, will enter into his religion according to their importance in his environment. Although the general fact that the physical environment molds religions may be self-evident, the specific forms which its influence has taken, even in early religions, requires further explanation. The power of the environment may be sufficiently illustrated by pointing out its effects:

first, upon the nature of the gods themselves; second, on conceptions of the after-life; and, third, on the general spirit and temper of the belief itself.

The character of the gods seems to have been determined either by overpowering natural objects in the environment or by necessities arising out of the life-struggle. The inhabitants of Gaul worshipped high mountains and held forests in reverence. In Alaska, volcanic mountains were represented as the abodes of the gods. In Asia Minor, where volcanoes and earthquakes were common, Poseidon, the earthquake god, was worshipped; and fire worship had there its natural origin. Similarly, in Egypt, where the sun and the Nile were the dominating natural objects, these were personified as powerful gods. The Nile, represented by Osiris, gave rise to their most popular religious myth. In the Sandwich Islands, where existence was ruled by the encompassing ocean, the waves were placated by human sacrifices. Semitic peoples, living in arid lands, deified the springs and the trees, their Baals being gods of favored localities. Where forces in nature were strongly contrasted, dualism among the gods arose, dividing them into good and evil spirits. In Scandinavia, the Jotuns, representing the frost, were evil gods whom the beneficent gods were constantly combatting. In Persia, some cataclysm of nature it is thought, probably of volcanic origin, gave rise to the dualism of the religion of Zoroaster.

The sun and other heavenly bodies, being discernible by all peoples, have had a place in all polytheistic religions. They seem to be of exceptional significance, however, not in the hottest parts of the world, but in dry regions such as Egypt, Babylonia, and Peru. The sun, the earth, and the rain come to be of much greater concern with agricultural peoples than with hunting or pastoral peoples.

The usual conception of the after-life is that it is a continuation and a perfection of the life on earth, that the hardships of the earthly existence will be removed and the joys augmented. These joys were originally physical and were indeed for a long time pictured as such. The American Indian looked forward to a happy hunting ground, while the Egyptian peasant contem-

plated the cultivation of fertile and well-watered fields. The belief in Egypt that the body must be preserved in order to ensure immortality probably was due partly to the dryness of the air, which served as a natural preservative. This belief led to the custom of embalming the dead to prevent decomposition, and to the building of pyramid tombs to guard them from destruction.

Peoples who have evolved the idea of a future life of possible retribution as well as of reward assign to the wicked continuance of the suffering experienced in this life. Desert tribes picture hell as a place of eternal torture from heat, while the Ice-lander, on the other hand, conceives of hell as cold and heaven as surrounded by an edge of flame. Inhabitants of the Arctic regions draw their ideas of hell from the long, cold, gloomy night.

Conceptions of the nature of the future life are also affected by climate and by the degrees of activity which it stimulates. In exhilarating temperate zones, although the after-life may be welcomed as a place of rest to the overworked, to the majority the prospect of an eternity of inactivity is unattractive, and they conceive the future world to be a place of continued work and achievement. Inhabitants of a hot, enervating country are more likely to make religion a matter of passive contemplation. The ideal of Nirvana, or the merging of the individual into the Deity, the negation of desire, and the extinction of individual existence, are beliefs which arise in a district where labor is a burden and where life for the most part brings only pain.

The instances just given of the influence of the physical environment on conceptions of the future life, illustrate also its effect on the general character of religion. Indirectly, through its effect on man's character and on his activities, the environment determines the quality of religious belief. A stimulating climate gives to religion an ideal of activity and achievement, while an enervating climate gives it a mystical tone and fosters a spirit of contemplation. Buckle emphasizes the point that, where nature is terrible and overpowering in its aspects, the inhabitants will be superstitious, and the tone of the religion will be hopeless, and conceptions of the gods terrifying. But in districts where nature is not menacing but friendly, man will be

inspired with confidence, the character of the religion will be joyful, and the gods will be represented as man idealized. And Buckle cites India as an example of the first condition and Greece of the second.

Influence of the mental factor. The stage of development of the human mind is the second great factor in the formation of religious beliefs. Inasmuch as religion expresses a relationship between man and the external universe, it is evident that the form and content of religions will vary not merely with the character of the natural environment but also in accordance with the degree of intelligence with which man contemplates nature.

The influence of the mind upon religion is emphasized by Caird, who distinguishes three mental stages, or religious viewpoints. Man may look outward on the world about him, or he may look inward upon the self within him, or he may look upward to the god above him who unites the outward and the inward worlds. These phases are never absolutely distinct, but one or another determines the form of his conscious life. In the first stage man's religion is objective. He thinks even of himself as an object among other objects. And this represents the stage of nature religions. In the second stage man concentrates upon himself and feels that the manifestation of the divine is in man rather than in nature. In this stage religion is subjective, moral, and metaphysical. In the third stage the essential unity of man and nature is perceived; and God is thought of as manifesting himself in both. The process of development of the human mind thus accounts for the great stages or epochs of religious belief which have often succeeded each other in the same general environment.

Another interpretation of the influence of the mind upon early religions is made by Max Müller, who separates objects of reverence into three classes. First, the tangible, such as stones, bones, shells, etc., which can be handled and with which man may become thoroughly familiar. Second, the semi-tangible, such as mountains, rivers, the earth, which can be touched but not entirely compassed and which therefore cannot be so well understood. Third, the intangible, such as the heavenly bodies, the clouds, and the sky, objects which cannot be closely ex-

amined and therefore are natural objects of superstition. As man's intelligence increases his reverence and fear pass from the most familiar to the least familiar objects. The gods become to him more distant, yet more comprehensive, forces.

The influence of the mental factor is particularly well illustrated in the evolution of monotheism which resulted chiefly from an advance in intelligence. Monotheism implies comprehension of the unity of the universe and perception that the apparent multiplicity of forces observed through the senses are but different manifestations of one and the same force. This realization depends of course upon an intelligent outlook upon nature, and the part which the aspect of nature plays in bringing about the transition of monotheism has been emphasized by Peschel, who makes it indeed the determining force. He points out that monotheism originated in desert regions and that this was because in general the solitude of desert regions is stimulating to the religious emotions, and in particular because the unity and simplicity of nature there tends to foster a sense of unity in all the forms of nature, and therefore in the spirit world as well. While this theory contains attractive elements of truth, the fact that desert peoples have not always been monotheistic should put us on our guard against placing too much emphasis on external factors, though it is doubtless true that the human mind rose to a consciousness of unity in the forces of the universe at an earlier period in the desert than it would have in a complicated and varied environment.

Quite a different viewpoint is that of Breasted who, taking Egypt as an example, maintains that monotheism rises out of political unity; that it is realized when the idea of nationality is abandoned for that of world power. "Monotheism," he says, "is but imperialism in religion." While political amalgamation did undoubtedly stimulate monotheistic tendencies mechanically by combining and reducing the number of polytheistic gods, and while from its very nature it must have carried with it powerful suggestions of universal unity, it can be counted as only one of the many factors which have enabled the mind to grasp this great conception. Imperialism was by no means the only road by which the mind approached the idea of mono-

theism. In Greece monotheism was chiefly a philosophical speculation, and with the Hebrews it was first an ethical conception. Monotheism is primarily due to the development of a broad mental outlook. Physical and social conditions have been merely secondary factors, aiding only indirectly through their stimulus to mental development, in its ultimate attainment.

Mental progress has affected in many minor ways also the conceptions and practices of religions. Explorations of inaccessible regions have removed the awe in which such places were formerly held. Better knowledge of natural laws has offered new interpretations of the manifestations and methods of spirit forces. Increasing intelligence has constantly altered methods of approach to the unknown and modified the cruelties and absurdities of early religious ceremonies.

Influence of social life. Political and social conditions have had a large share in determining the immediate forms of religions, although they play a secondary and minor part in bringing about the fundamental changes in religious beliefs. It is noticeable that organizations of the gods reflect political organizations, even down to minor offices, such as cup bearer and messenger. The development of political life also from the ethnic to the national type of organization is reflected in religious conceptions and God is represented successively as patriarchal father and as king.

The position of woman is reflected in the hierarchy of the gods by the relative importance of goddesses. In the clan period of development where mother right is established, female deities are ordinarily more powerful than in the patriarchal period. Among the Esquimaux, where the sexes are approximately equal, the deity presiding over the food supply is an old woman whose abode is in the sea. Among the Semitic tribes where mother right prevailed, goddesses were highly esteemed. With the Egyptians also the female held a position of prominence both among the gods and among men. Under the patriarchal system, however, goddesses were inferior. The relative importance of women among different peoples is aptly illustrated by the sex ascribed to the heavenly bodies. In Japan the sun was feminine and in China it was masculine. Sometimes deities have changed sex to correspond to alterations in the position of women.

A change in the political importance of a district has almost necessarily altered the relative position of its gods. Mere growth in the size of a city was sufficient to bring the gods of that city into greater prominence, and the military ascendancy of a city or a state was always proof in itself of the superiority of its gods. As long as Babylon was an unimportant city, Marduk was merely a patron deity of the locality; but, as Babylon grew stronger and conquered and united the surrounding territory, Marduk came to be a war god, and later rose still higher and assumed the rôle of Bel, the god of earth, and was known as Bel-Marduk. Similarly Ashur was at one time a local god of the city of Ashur, but while Assyria was attaining military supremacy Ashur was the god of war and finally became the chief god of Assyria. The same tendency appeared in Egypt. Amon was at one time the local god of Karnak; but later, in the 17th dynasty when Thebes was made the capital, he was elevated to the supreme position and was merged with the sun god under the new title of Amon-Re. As peoples were amalgamated polytheistic gods were usually united, those having similar characteristics being merged, or identified as the same gods.

The vital pursuits of a society affect strongly its religion. If a state is warlike, its chief gods will be war gods, and the ideal characteristics of the gods will be those suggested by the needs of conquest and defense. Power, jealousy, and vengeance are attributes of the gods of a militant people, with protection and justice as the highest ethical characters likely to be evolved. Such characters as love and mercy are idealized only among a peaceful industrious people.

Thus a study of early religions leads to the conclusion that in the objective stage of man's development the character of religion was molded chiefly by the external environment; but that as man developed subjectively the influence of the physical features weakened, and the character of the spirit world was fashioned by mental ideals, and its organization reflected current political and social forms. Mental life has always been the primary influence on religion, and the stage of mental development has also helped to determine the importance of some of the secondary factors.

Factors Influencing Ethical Religions. While the factors just reviewed may be accepted as influencing nature religions, it may be argued that they are of little effect upon ethical religions. But the truth seems to be that the same factors have been at work on all religions, though their relative importance has differed in different places and the nature of the influence they have exerted has varied. The physical environment is doubtless a less direct determinant upon advanced religions, although climate and physical features perhaps still assist in determining whether a religion shall be a contemplative mystical belief or a religion of action. And the physical environment always continues to influence religion, at least through its effect upon the character of thought. In all periods of mental development the religious attitude is likely to be quite different in a favorable environment, where man is master, from what it can be in an adverse environment, where the rewards of labor are scanty and uncertain.

Mental life is obviously the strongest factor in shaping ethical as well as nature religions. The same religion will, over a considerable period of time, become less material and more spiritual as thought is matured and refined. And at any given period the conceptions and practices of a religion will be quite different for the intellectual classes and for the ignorant in the same physical environment. Political and social factors will not affect a monotheistic religion in the same way that they will a polytheistic religion; but they will modify ideals and therefore determine the character and attributes of God. We have recently seen the spectacle of a militant people making of God a national deity, whose ideals were might and vengeance, and whose interest lay in the supremacy of a particular people and in the extermination or subjection of other peoples. Quite different is the idea developed among peaceful, industrial peoples of a God of all who loves justice, mercy, and peace. Democratic ideals help to democratize religious conceptions. In modern times God would hardly be represented as father-mother except in a society where the position of woman was high.

The Future of Religion. If the three factors, the physical environment, the social organization, and the stage of mental

development, determine the nature of religious beliefs, then it must be concluded that religion will continue to vary with different peoples and with different stages of development. An universal religion is incompatible with diverse stages of culture. Even though one religion were in name accepted by all, its doctrines and ritual would receive varied interpretations by dissimilar peoples. On the other hand there is reason to believe that the future will show greater unity rather than greater diversity in religious beliefs; and this not necessarily because people will become more alike but because they will show less inclination to emphasize unimportant details. With regard to the religious beliefs and practices now existing, the tendency will be for sects to perceive similarities and to coöperate and even perhaps combine rather than to multiply. When, however, it is a question of new religious beliefs, new sects will probably be established to propagate those beliefs, as established religious organizations are resistant to change either in doctrines or in practices. Such multiplication of religious organizations should not be deplored since it indicates vitality in religious thought and a groping for a nearer approach to truth.

In the future the character of the more advanced religions will be determined chiefly by the development of the mind. Progress will be marked by the elimination of material elements in religion and by an increasing recognition of the importance of spiritual forces in life, accompanied by an intensified desire for more complete adaptation to those forces.

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CHAPTER XXXII

SUMMARY AND CONCLUSION

Any mere description of social phenomena must seem unreal and fragmentary, because the various social processes, which are actually interlaced to form a complex unit, are necessarily treated separately; and therefore the sense of interdependence and coördination in their action is lost. This defect may be partially corrected by summarizing the social processes from a different point of view, paying special attention to their interdependence and their concurrent development.

The order of the description of social phenomena in this volume has been from the more physical to the more intellectual phases of social life; but the actual evolution of groups has followed this order only in the sense that intellectual products may have been relatively more important in the total life of society as civilization has advanced. The development of one phase of social life has not preceded another, for the rudiments of all were present from the start; and evolution has consisted in the simultaneous development of all departments of social life, these departments acting and reacting upon one another like the parts of a complicated mechanism.

Review of Social Development. If one takes a cursory view of the changes which have taken place since primitive times, he will be impressed with two things, the development of man himself, and the growth in size and complexity of the social organization. And a general review of the course of evolution should take account of both these processes.

An analysis of the complete process of social evolution must recognize at least three stages, these stages being represented by modifications in the social organization as a whole, and also by distinct changes in all the separate institutions. For this reason stages of social development may be classified in a variety of ways according to the point of approach, or the particular institution emphasized. In economic life four stages are sometimes

distinguished, the hunting stage, the pastoral, the agricultural, and the industrial. The family organization has presented at least three important types, the indefinite form, the proprietary, and the monogamic. Political activities lend themselves to a similar classification, for these began in an ethnic organization, and this was replaced by an absolute form of government, and that in turn gave way to a democratic form. And the general social organization itself was first of the segmentary type, and later the groups were consolidated into a class organization, which is now being gradually replaced by the system of division of labor. These various types of social institutions do not follow the same order or arrangement in every society, but they are nevertheless closely connected and causally interrelated.

Among primitive peoples the most prominent activities or organizations are, on the physical side, connected with their crude methods of obtaining a livelihood and with the beginnings of family relations; and, on the intellectual side, with a rudimentary mental life which manifests itself chiefly in religious observances. In addition to these fundamental activities there is a loose organization of the whole group along ethnic lines, and some attempt to formulate the results of experience into principles of action and to enforce these rules of conduct, thus developing the beginnings of organized group control over the individual.

Progress among primitive peoples, and to a decreasing extent among the more advanced as well, is almost entirely unconscious and automatic. It results from the attempts of individuals to satisfy their desires under different environmental conditions. Only later is there even a dim perception of the idea of general social well-being, or the realization that welfare may be advanced by concerted action.

The reason for the more rapid advance of some peoples over others, is traceable primarily to the character of the environment. A favorable environment permitted the growth of population; and a larger population stimulated progress both in thought and in forms of social organization. A growing population, by increasing the struggle for life, caused an improvement in the type of individual through the processes of selection. The increased competition resulted also in the splitting up of groups

and in migrations to new environments. And later the search for food brought groups into conflict which resulted in consolidations and social stratifications. These consolidations of peoples had the advantage of being more concentrated units, and probably also superior forms of organization.

These social transformations were in turn accompanied by intellectual growth. All environmental changes, whether caused merely by increasing numbers or by migrations or by contacts with new peoples, present new problems for solution. But new problems in the majority of cases were probably evaded rather than solved, for human ingenuity is rare and new adaptations are troublesome. For example, the embarrassments arising from excessive numbers were usually avoided by means of infanticide or the killing of the aged, rather than overcome by a more adequate method of increased provision. However, in a few noticeable instances a real solution was found in the attainment by one means or another of a more ample food supply. For the solution of this problem, like that of most of their problems, lay in fuller coöperation with the forces of nature. Eventually animals were domesticated and utilized instead of being killed; and vegetable products furnished by nature were cultivated and improved.

Man's increasing success in his struggle with nature permitted not only the existence of larger populations but also the accumulation of surplus wealth. This surplus, representing the product of man's labor and suggesting his increasing mastery over the forces of nature, contributed greatly to the owner's feeling of self-importance and stimulated in him an attitude of domination. This sort of mental development, centered in the male, was the natural accompaniment of physical conditions in which warfare was of common occurrence and the labor of production was chiefly carried on by the men. These conditions were reflected both in the family relationship and in the political organization, where hierarchy and authority predominated and persons in power exercised absolute domination. The family was organized on a proprietary basis, polygyny was the approved form of marriage, and the larger political groups were organized on a class system, slaves being the recognized form of labor.

Mental products, as well as social forms and institutions, conformed to environmental conditions and were active forces in influencing social life. Religion was of an hierarchical and absolute character. The conception of the attributes of the gods corresponded to the type of individual most useful and most admired under conditions of general warfare and under social systems of rule by force. And the nature of religious worship grew out of the specific needs of the people, such as success in war, bountiful harvests, ample water supply, or the desire for male offspring. Both religion and art were employed as means of social control, being used as aids in enforcing obedience to authority and preserving existing social relations. Morality was essentially an individual matter. It set up an individual ideal which was socially useful and enjoined loyalty and virtue for each individual in that station in life to which he was born. It did not presume to analyze the justice of social organization or to improve it, preferring rather to leave the question of justice to a future state of existence. The law naturally was no improvement upon prevalent ideas of morality. Not only did it take for granted the existing political organization of domination by the powerful and the differences in privileges and responsibilities corresponding to class distinctions, but it was used as an instrument for the enforcement of these distinctions and inequalities. Thus mental products were expressions of the beliefs of the times, which grew out of the existing social conditions.

The chief characteristics of the second stage of social evolution persisted for a long period of time, though the characteristics varied in different environments, and doubtless the new forces were gradually accumulating which were destined to alter the form of social life. The immediate impetus towards a new stage of social organization seems to have come from an intellectual awakening rather than from physical changes. Inventions made ocean travel possible; and this led to geographical discoveries, which opened up valuable territory. Other inventions further perfected means of communication and improved processes of production. The resulting increase of food and of other forms of wealth was accompanied by another marked increase in populations; but in this case the growth in numbers seemed to follow

the mental awakening, whereas in the early period the pressure of population seemed to be the force which stimulated new mental products. Whether or not mental products furnished the original impulse for the change to the third stage of development, increase in population was at least a strong secondary influence. Predominant tendencies in the third stage of development led from domination and oppression towards individual liberty and social equality. In economic life the continuing pressure of population caused division of labor, stimulated further invention, ushered in the industrial system, and multiplied wealth of all kinds.

Improved means of communication was the dominant factor in enlarging the political and social unit, in weakening oppositions and increasing social uniformities. This led to a democratization of the form of the state and increased its stability by removing the element of compulsion and by substituting for it a voluntary organization based upon the common interests of the people as a whole. This movement towards equality and individual freedom has included both sexes, and therefore it has affected not only political life but even more noticeably the form of the family. Present alterations in the family are merely its particular manifestation of those general changes occurring throughout society, notably increase in individual freedom and in equality of rights and privileges.

In this stage, as in the preceding, mental products form an integral part of the whole social life and conform to other products and institutions. For the first time in the history of civilization positive knowledge, or science, appears as a factor of importance in social life. This new factor has first of all increased enormously man's power over nature, but it has also altered his entire attitude towards life, substituting for the early sense of helplessness and dependence upon the arbitrary action of mysterious and unfriendly powers, the hope of his ultimate mastery over both physical nature and social relations. And this new attitude has been reflected in all other social institutions and products.

The character of religion has been noticeably altered both by the growth of science and by the change in forms of association.

Its superstitions and dogmas have tended to disappear under the attacks of reason and the extension of positive knowledge; and the scope of beliefs has been narrowed down to those essential for social welfare. Its precepts themselves have changed with the broadening of the area of social intercourse and the increasingly democratic nature of the social organization. The new social relations have permitted the expression of universality in our conception of human relations, and of brotherhood and love as the ideal attitude of individuals towards one another.

A notable change in moral ideals has resulted from social changes arising out of increased density of population, which has stimulated division of labor in industry, democracy in politics, and greater equality in social life. In the first place, the form of social organization and its effect upon individual development have achieved a position of paramount importance, and hence morality has come to have a social as well as an individual application. Moreover, its teachings have responded to the new ideal of equality in place of privilege; and it imposes similar standards upon all members of society and requires conditions favorable for the development of all. And finally the attitude towards moral codes has been powerfully affected by the scientific spirit. Mere reiteration of moral principles is no longer convincing, for conduct is governed increasingly by reason. Individual acts and social relations must now show a clear utilitarian value if the majority are to be influenced by them.

And lastly, law, the instrument of the state, has become less conspicuously the weapon of power and privilege, and is representing increasingly the wishes of the majority. In so far as social relations are cemented by voluntary agreement arising out of general individual advantage, instead of by force exercised by the few, law has come to represent abstract justice instead of the exercise of arbitrary authority.

While mental products also tend to conform to the general type of social organizations existing, they idealize social relations and thus help to perfect them. Mental products therefore are not passive social agencies. They exert a positive influence for betterment, though they are not revolutionary forces. Their influence is seldom in favor of replacing existing institutions by others.

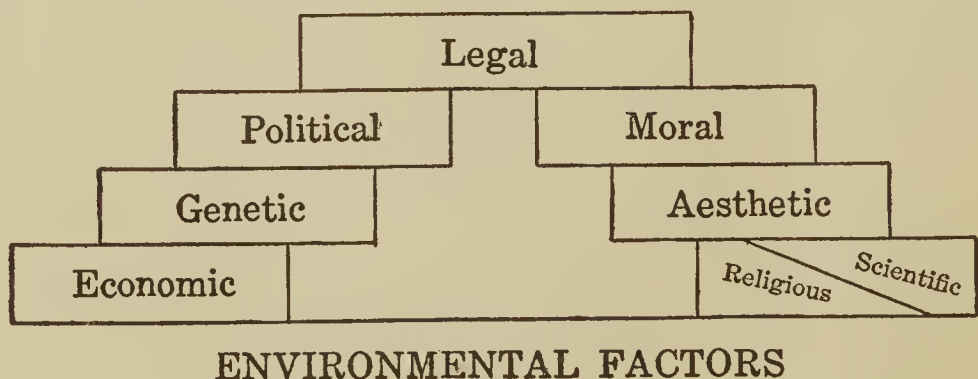
The Future Trend. In describing the characteristics of the modern period as those of greater individual freedom and equality, it is not assumed that these characteristics are fully matured, but merely that they represent the trend of the time. Predictions concerning future developments, in so far as they are worth while, would merely be in line with previous changes. Present tendencies indicate that inherited privilege will disappear, and the system of division of labor will be perfected. Democracy in political and in family relations, which still seems to be little more than a form, will be realized in fact. And economic relations, which have not yet reached a satisfactory solution, must work out a form of democratic control which will be in keeping with other institutions and will reflect the spirit of the times. Finally, when the forms of social organization have been brought into harmony with the principles of individual liberty, all mental products will be much less restricted. They will become free expressions of the ideals embodied in them, and their service and influence will therefore be greatly increased. In the past, exercise of physical force and compulsion in the social organization has tended to warp the ideal products of the mind; and these, not being free channels for the expression of truth, have sometimes hampered individual and social development.

The Interaction of Social Institutions. This brief review of the development of the social organization is sufficient to show that social institutions and social products are not distinct and separate entities, but are closely related parts of a whole, each part acting and reacting upon the others. The organic concept of society, though furnishing an unsatisfactory symbol in some of its details, is suggestive and accurate when used to illustrate the idea of the interdependence of parts. It is evident that in a well-organized society, as in any organism, all parts must be present and must perform their proper functions; and in both cases every organ has an influence on all of the others. Nevertheless it is also true both in society and in an organism that some organs and functions are more fundamental and necessary than others; and in the matter of reciprocal influence each has a stronger and a more direct influence upon particular organs or institutions than upon others.

The true nature of the interrelationship of parts in society is of importance and has been the subject of considerable speculation. The socialists have given the chief impetus to the discussion in their insistence that economic activities are the most fundamental of all and are also the most influential in determining the character of other institutions, though in their more careful statements they admit the organic nature of society and the general interdependence and interaction of parts. With regard to the importance of the direction of their influence, Labriola¹ maintains that the economic organization determines in the first place and directly the formation and struggles of classes, the regulations relative to law, morality, and the state; and that indirectly it also affects the products of the mind, such as art, religion, and science.

Professor De Greef² has arranged social phenomena in the following order, economic, genetic, aesthetic, beliefs (religious, metaphysical, and scientific), moral, juridical, and political. This arrangement seems to be primarily a classification of the social sciences after the manner of Comte's classification of the primary sciences, for the author's chief contention is that they are arranged in order of decreasing generality and of increasing complexity; but his discussion implies that he has in mind also their actual order of dependence in social life, though it may be unfair to apply that principle strictly to all parts of the classification.

It seems to me that interdependence of social phenomena could be indicated better by a more circular arrangement instead of a lineal one; and I would therefore suggest the following order:



¹ A. Labriola, *Essays on the Materialistic Conception of History*, p. 201.

² G. de Greef, *Les Lois Sociologiques*, p. 82.

This arrangement is intended to indicate that out of the original relationship between man and the physical environment there grew up simultaneously forms of social organization and mental products. The sequence suggests the direct influence of one phase of social life upon another, and also the more indirect influence of factors below but not immediately adjacent. The breaks in the linear arrangement are intended to indicate the existence of minor cross-influences acting upon each institution.

The specific influences determining the various organizations have been discussed in detail in the treatment of each of the separate topics; and a brief summary will be sufficient here. Considering social institutions first, the influence of the physical environment upon economic life is manifest. Inasmuch as wealth production means the extraction and the adaptation of nature's products, economic activity is consequently directed and limited either by the mineral resources existing or by the vegetable products which are possible of cultivation. Next, goods have to be transported, and nature determines to a considerable extent both the highways and the method of communication, whether by sea or by land. And finally economic life is directed to a lesser degree by the effect of climate, or of land surface, upon the consumption of goods. The kind of goods demanded determines, within limits imposed by the environment, the kind of goods produced.

While the physical environment therefore determines in a broad way the character of economic life, all social institutions react upon it and in a limited way help to determine its details. These influences are so numerous that mere suggestions concerning their nature will have to suffice. All human activities and interests affect desires and therefore help to determine the character of production, always of course within the broad limits set by the environment. Social customs and fashions are conspicuous in their effects on production; but the environmental limits to production are so continuously operative that they are likely to be ignored. For example, changes in style of clothing may be considerable from generation to generation; but such changes are always limited by the comparatively few natural products suitable for use as clothing. In addition to customs, moral ideals

and legal restrictions play a part in the direction of consumption and therefore of production.

The institution of the family, though affected by numerous cross-currents in the social organization, is most strongly influenced by economic life. In the first place the form of the family has been determined to a large extent by economic conditions, for, although, as has been pointed out, broad changes in the family are traceable to the development and the nature of the personality, economic conditions particularly in early times have been instrumental in determining the direction of its growth; and economic conditions have also been the most potent forces in determining specific forms of the family. In the second place, in addition to shaping the form of the family, economic conditions have determined an even more important factor, and that is the size of the family, or in other words the total population. The size, the distribution, and the density of population are all economic phenomena in the sense that they depend upon the wealth of the environment, the configuration of the land surface, and the character of the products.

The form and character of the state are determined immediately by genetic forces; but they are influenced indirectly by the economic organization, and more indirectly still by the nature of the environment. In the beginnings of civilization family relations had a direct bearing on the larger organization, in the sense that these early political forms were ethnic. And, while the growth of population and a settled habitat obliterated the influence of immediate blood relationships, still in modern states similarity of blood within racial limits appears to furnish the best material for a harmonious political organization. Of more importance has been the effect of numbers, for the size and density of populations have been the chief factors in determining the type of the state. The form of the state has also been affected by class divisions and systems of production, such as slavery or wage labor; but these again are genetic or economic phenomena. A single illustration will make clearer the interdependence of the several forces. England is in some ways the most democratic country politically in the world; and its democracy has resulted chiefly from the compactness and the homo-

geneity of its population, which is congregated in large cities and is possessed of ample means of communication. Its concentrated population is the direct effect of its industrial development, and that in turn has resulted from two environmental conditions: first, its limited area, which prevented the inhabitants from scattering and which made impossible an isolated agricultural existence but stimulated a search for new sources of wealth; and, second, the existence of coal and iron in close proximity, which permitted industrial life. Another element was that their insular position enabled them to defend themselves from attack and therefore to avoid heterogeneity in population sufficiently to favor the formation of strong and permanent class distinctions. If the intermediate steps be omitted, it would then be approximately correct to conclude that the inhabitants of England were destined to evolve a democratic form of government because of their insular situation and their possession of rich deposits of coal and iron.

Considering next the group of mental products, the intellectual life of a people is embodied most directly in religious beliefs and in positive knowledge; and these two in a sense supplement each other, for neither by itself covers the entire field of thought. Both are immediate products of the environment. Science means positive knowledge concerning one or the other primary factor in social life, the environment and man, the natural sciences dealing with the former and the social sciences with the latter. Religion is speculation concerning man's relationship to unknown external forces. In primitive stages of culture the absence of positive knowledge caused these speculations to cover more intimate as well as more distant objects of nature; but in later stages of culture natural objects were transferred to the domain of science, leaving the more spiritual relations only as subjects for religious contemplation. Therefore the character of the environment and the progress of positive knowledge must determine the broad outline and general character of all religious beliefs; and with nature religions they also affect the minute details of belief and the character of religious worship. Even in advanced religions the environment influences the character of the religion, and the attitude of the individual, in so far as it affects his

temperament, his interests, and the degree and character of his activities.

After defining the work of science it is almost a truism to say that the character and extent of positive knowledge is determined by the nature of the environment. In an advanced stage of thought it is true that all sciences possess a general interest and are taught in every center of learning; but in their inception they are clearly dependent upon environmental factors. For example, geology was of more interest in mountainous districts than on broad plains; astronomy advanced more rapidly in dry than in moist climates; and zoölogy was influenced by the nature of the animals to be found in a particular region. But in addition to these specific influences, all sciences have developed in response to the needs arising out of man's struggle with his environment. Therefore positive knowledge has advanced whenever difficult problems have arisen, the type of the problems determining the kind of knowledge to develop. Thus nature stimulated science through the number and the character of the difficulties with which it confronted man; but nature also determined the rate of scientific progress through its effects on man's energy, for unless man was stimulated by favorable climatic conditions he made little effort to solve the problems nature presented.

Given the intellectual life of a people, divided between the speculative aspects of religion and the rational aspects of science, the ideal products of art and of morality evolve as direct expressions of the breadth and character of the mental life. The power of generalizing and of formulating an ideal, as well as the method of expressing the ideal, all depend upon the stage of intellectual development. Even the character of the ideal will vary with the quality of the intellectual life. If the mental life of a people is predominantly religious or speculative, ideals expressed in art will be more abstract, and more idealistic, and less sensuous. If the mental life lacks the religious element and is more scientific and practical, aesthetic expression will deal with immediate objects of interest, will be more realistic and will appeal more directly to sensuous enjoyment.

The relationship of art to morality is direct and significant.

Art idealizes, and in doing so it furnishes two necessary elements contained in the highest type of morality. It helps to develop altruism, and it helps to substitute idealism for materialism. Art stimulates altruism because it invites the individual to contemplate something outside himself. It stimulates sentiments radiating away from the self, such as admiration, awe, and wonder; and checks egotistic, ingrowing sentiments. Art tends also to counteract materialistic tendencies, because it idealizes for the sake of the ideal and not for any appeal to utility. Art teaches that the good is outside the individual and is larger than individual concerns; and it suggests also that the good is not a matter of ownership or of material value, but is an end in itself, as distinct from a material means of attaining the end. Self-centered interests and materialistic sentiments are at the present time the propensities which interfere most seriously with complete moral development; and the notable deficiency in modern life is fine artistic perception and expression. In other words present-day morality lacks the elements normally furnished by art. Morality of an imperfect type will develop without the aid of aesthetic ideals, because it must meet the needs of social life for a working set of rules to preserve social order; but such moral rules will be likely to be individualistic and utilitarian. They will guard the individual in the pursuit of his selfish interests, but will do little to counteract the idea that the good consists of possessions.

And finally, coming to the last, and in some respects the highest, expression of social life, — the law; it appears that this register of the social will results directly from the form of the state on the one hand and the moral ideals on the other. So long as the state is a compulsory instead of a voluntary form of organization, the law will be used by the powerful to restrain the exploited and to retain positions of privilege with little regard to abstract justice. In fact the moral ideals themselves will endorse existing social relations. But when the state becomes a democratic organization of equals, moral theories will be freer to incorporate ideas of abstract justice; and the law will become an instrument for realizing justice. When ideals are materialistic and individual, the law will be looked upon as an agent for

acquiring special privilege and personal gain. When ideals emphasize mental life, and when intellectual products are deemed the most vital ones, intellectual interests instead of material advantage will tend to direct legislation; and the law will become the instrument for reshaping the social organization in the interests of the majority.

In the theory known as *The Economic Interpretation of History*, the more material forces of the social organization, particularly the economic activities, have been represented as the factors of chief importance in determining the form and character of the social life; and undoubtedly they are powerful agencies. But, nevertheless, the products more distinctly intellectual seem to have a separate root of their own. And the character of the mental life, though itself strongly influenced by other parts of the social organization, is also a powerful factor in determining the character of social life. Which force is the stronger it would probably be difficult to ascertain; and, instead of representing society as having a single root out of which grow all other social institutions, it seems to me to be more nearly in conformity to the facts to represent the social organization as having at least two independent roots, the physical and the mental, and to emphasize the close interrelation of all social products.

In addition to the use of deduction in solving the problem of the immediate order of dependence of social institutions upon one another, valuable evidence should be obtained by the objective study of institutions in different societies, though conclusions concerning dependence are sometimes difficult to make. With regard to inductive verification, I will merely say that, in a preliminary study of seventeen societies in various stages of development, the evidence concerning the order of dependence of institutions seems to confirm rather than contradict the conclusions arrived at by deductive means.

Conclusion. In conclusion it may not be out of place to repeat in essence the statement made in the first chapter that the purpose of a study of this kind is to analyze the forces at work in normal healthy societies, and in particular to ascertain the factors and the conditions which contribute to the develop-

ment of societies. In making these studies the sociologist, like the biologist, inevitably encounters many problems; and their character in the two fields differs but little. When society reaches that stage of self-consciousness in which it tries to direct its forces and control its destiny, problems of two kinds appear: first, those dealing with abnormal or pathological conditions; and, second, those involved in evolutionary or progressive movements. And we sometimes mistakenly add to the list the appearance of any factor which is new or imperfectly understood, though such a phenomenon does not present a problem in the proper sense of the term. Any new condition may require study in order to be comprehended; but only conditions which call for modification constitute problems. When the botanist discovers a new plant he may need enlightenment, but the situation presents no biological problem. The same principle applies in the field of social phenomena, though our general ignorance of normal forces is so great as to cause us to suspect the existence of a problem in anything new or strange which presents itself.

Of the valid problems of sociology the pathological are usually considered of chief importance, if indeed they are not regarded as the sole type; but evolutionary problems are of even greater significance. The general problem connected with abnormal manifestations is that of curing or eradicating unhealthy conditions; and the one connected with growth or evolution is the attainment of a given desirable result without incurring also undesirable consequences. Social forces are so closely inter-related that any attempt consciously to direct the course of evolution usually involves important side issues, though sometimes direct improvements can be effected without serious complications. Sometimes, too, improved conditions would come about of themselves, if we had the wisdom to refrain from interference. Almost all important gains, however, have been achieved only through waste or positive injury, and the reduction of such waste to a minimum and the avoidance of evil results, is an integral part of every social problem.

With the rapid changes going on in society, evolutionary problems are appearing in practically all social institutions. In economic life they are numerous; and they may be divided into

two groups, those concerned with increasing production, and those concerned with improving distribution. But among all these the pivotal problem, as I conceive it, is the attainment of democratic control in industry, without incurring the danger of diminution in the sense of social responsibility.

The problem connected with the institution of the family concerns the achievement both of greater equality of position between the sexes and of greater individual freedom within the marriage bond, without endangering the primary function of the family, that of propagation.

Political institutions present two primary problems, external and internal. The external problem consists in eliminating war by unifying the interests of states, without at the same time sacrificing the spirit of independence and the community of feeling which naturally belongs to racial groups. The internal political problem is not so different from the economic one. It consists in the attainment of the true spirit of democracy without the sacrifice of efficiency. It means the realization of equal individual rights without the sacrifice of social allegiance and the sense of responsibility. The betrayal of the principles of democracy is less serious when the ignorant yield up their rights of free expression, than when the powerful pervert the organs of state to their own selfish ends.

Problems connected with cultural activities are similar in nature. All involve the search for and the expression of truth without regard to the prejudices or self-interests of individuals or classes.

If these various social problems were worked out no judicial problem would exist, for the law would be the normal expression of a healthy social organization. But until they are solved, the law in its judicial aspects has the difficult task of administering abstract justice without partiality; and in its legislative aspects, of checking greed and self-interest, and organizing and regulating social forces for the general good. Although the law cannot arbitrarily alter fundamental social institutions, it often can assist in their reorganization and improvement.

Although these various problems are ordinarily thought of as separate and distinct, they are actually off-shoots of the great

evolutionary problem of the best general organization for society. And the solution of that problem will consist in the elimination of inherited privilege or position with its accompanying system of rigid castes or classes, and the substitution for it of equality of privilege and opportunity, through the establishment of a society based upon voluntary coöperation growing out of a complete system of division of labor. Such an organization of society will be democratic in the broadest sense of the term, because opportunity will be in proportion to ability; and it will also be progressive, because an organization embodying justice will permit the highest degree of individual development.

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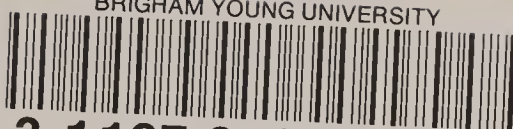
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